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Office of the Assistant Secretary for Housing—Federal Housing Commissioner

24 CFR Part 3280

Manufactured Home Construction and Safety Standards; Proposed Rule

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Office of the Assistant Secretary for Housing—Federal Housing Commissioner

24 CFR Part 3280

[Docket No. R-92-1497; FR-2622-P-01]

RIN 2502-AE66

Manufactured Home Construction and Safety Standards

AGENCY: Assistant Secretary for Housing—Federal Housing Commissioner, (HUD).

ACTION: Proposed rule.

SUMMARY: HUD is proposing to amend the Federal Manufactured Home Construction and Safety Standards (FMHCSS) to include preemptive standards significantly upgrading the existing energy conservation requirements. Additional miscellaneous amendments recommended by the Council of American Building Officials (CABO) and the MHCSS Consensus Committee (MCC) are being proposed.

DATES: Comment due date: May 26, 1992.

FOR FURTHER INFORMATION CONTACT: Donald R. Fairman, Manufactured Housing and Construction Standards Division, Department of Housing and Urban Development, 451 Seventh Street, SW., room 6270, Washington, DC 20410-8000. Telephone (202) 708-0718. (This is not a toll-free number.)

ADDRESSES: Interested persons are invited to submit comments regarding this proposed rule (notice) to the Rules Docket Clerk, Office of General Counsel, room 10276, Department of Housing and Urban Development, 451 Seventh Street, SW., Washington, DC 20410. FAXed comments are not acceptable. Communications should refer to the above docket number and title. A copy of each communication submitted will be available for public inspection and copying between 7:30 a.m. and 5:30 p.m. weekdays at the above address.

SUPPLEMENTARY INFORMATION:

I. Background

The National Manufactured Housing and Construction and Safety Standards Act of 1974, 42 U.S.C. 5401 et. seq. (Act), authorizes the Secretary of Housing and Urban Development (Secretary) to establish and amend the Federal Manufactured Home Construction and Safety Standards (FMHCSS), 24 CFR part 3280 (Standards). The stated purposes of the Act are "to reduce the number of personal injuries and deaths and the amount of insurance costs and property damage resulting from manufactured home accidents and to improve the quality and durability of manufactured homes." 42 U.S.C. 5401. In accordance with the Act and these purposes, the Department is issuing these proposed amendments to the FMHCSS for public comment.

A. Amendment to the National Manufactured Housing Construction and Safety Standards Act of 1974

The Housing and Community Development Act of 1987, 42 U.S.C. 5301, amends the National Manufactured Housing Construction and Safety Standards Act of 1974 (Act) to require preemptive energy conservation standards. The new subsection to section 604 of the Act is reprinted as follows:

(i) (1) The Federal manufactured home construction and safety standards established by the Secretary under this section shall include preemptive energy conservation standards in accordance with this subsection.

(2) The energy conservation standards established under this subsection shall be cost-effective energy conservation performance standards designed to ensure the lowest total of construction and operating costs.

(3) The energy conservation standards established under this subsection shall take into consideration the design and factory construction techniques of manufactured homes and shall provide for alternative practices that result in net estimated energy consumption equal to or less than the specified standards.

To comply with the Act, the Department contracted with the Pacific Northwest Laboratories to assist in developing a revision to the existing energy conservation requirements in the FMHCSS. The developed revision is based upon the requirement to ensure the lowest total construction and operating cost. This revision is being published as a proposed rule for public comment.

Concurrently with the Pacific Northwest Laboratory, the MCC [1] caused an alternative energy conservation standard revision to be developed for the FMHCSS. It was duly submitted to the Secretary by the MCC for consideration. The substance of this alternative is discussed in parallel with the discussion on the proposed rule.

[1] The MCC (The Manufactured Housing Construction and Safety Standards Consensus Committee) is a group of manufacturers, regulators and other interested parties involved with the manufactured housing industry. The Manufactured Housing Institute serves as the Secretariat of the MHCSS Consensus Committee.

B. Private Organizations Developing Model Manufactured Housing Standards

On July 7, 1982, 47 FR 29605, HUD announced its interest in having a nationally recognized building code or standards organization develop, publish, and maintain model standards which could replace, by reference, all the HUD standards now in the FMHCSS. HUD would retain its responsibility and authority to promulgate and enforce revisions to the FMHCSS by using formal rulemaking procedures. Model standards incorporated by reference in the FMHCSS would then become preemptive and be enforced as a HUD standard.

The decision to select a private standards organization, in response to **Federal Register** announcement, was postponed in order that the Department could finalize comprehensive revisions to the Standards that the Department had initiated. The notice was re-issued February 13, 1987 at 57 FR 4663. On February 16, 1988, the Department announced at 53 FR 4463 that the Council of American Building Officials (CABO) was selected to initiate the process of developing a model standard for the FMHCSS in the private sector.

Although CABO was selected in response to the notice of February 13, 1987 to develop standards, the Department will consider standards developed by other organizations on an equal basis with standards developed by CABO for incorporation into FMHCSS. The Department does not consider CABO as an exclusive or preferred source of model standards. Other interested organizations were invited to submit model standards for consideration to HUD at any time. The Manufactured Housing Institute (MHI) declared its interest shortly thereafter.

Subsequently, CABO and MHI established separate Manufactured Home Construction and Safety Standards Committees. Recommendations for amendments were developed and submitted to the Department by both committees. Accordingly, the Department is issuing this notice of proposed rulemaking to solicit public comments on these recommendations, as well as other changes the Department feels it is necessary to propose.

C. General Update of the Standards

The Department is still charged with the overall maintenance of the Federal Manufactured Home Construction and Safety Standards. Accordingly, the Department believes it is necessary to

propose changes to the Standards in response to information that is received directly. Most of these changes are for the purpose of clarity. They either incorporate a previously issued interpretive bulletin into the standards or revise the standards to more clearly state the requirements to reflect the manner in which they are being enforced. Other changes, such as those to Subpart A are basically editorial. The Department is initiating a general update of all the standards incorporated by reference.

II. Energy Conservation Standards

A. The legislation passed by congress requires that the Department of Housing and Urban Development revise the FMHCSS to incorporate preemptive energy conservation standards which shall be cost effective and designed to ensure the lowest total of construction and operating costs. The congressional record clarified that the revision is to be based on a life cycle cost analysis taking into consideration the cost of energy conservation (efficiency) measures (ECM) and the energy savings from those measures over the effective physical life of the structures.

The approach used in developing the proposed energy conservation standards revision is a cost-benefit analysis in which the costs of energy conservation measures (ECM) were balanced against the benefits of energy savings. The resulting optimum was used to specify an overall level of energy conservation in terms of a building shell U-value (thermal conductance) that produced the lowest life-cycle cost to the owner of a manufactured home.

Several major activities were accomplished in the development of the proposed energy conservation standards. They are: 1. A life-cycle cost model to determine the optimum ECM investment was developed. 2. The definitions of the ECM, including their cost and "U" value, which could be considered as options were established. 3. The financial, economic, and fuel price parameters used in the life-cycle cost analysis were defined. 4. Separate "U" value optimums were defined for a large number of cities using different energy sources for both single and multi (double) section homes. 5. The resultant "U" values were aggregated in several steps into four "U" value zones, each one having a specified maximum coefficient of heat transmission.

At the direction of Congress the life-cycle cost (LCC) analysis from the consumer's perspective was developed as the basis for revising the HUD thermal standard. The LCC compares the total long-run (present value) dollar costs for an objective achieved through several alternative courses of action and selects the course of action that achieves the objective for the least cost. For this LCC analysis the benefit is the energy savings from the ECM's; and the major cost is the ECM cost, including the associated mortgages, fees, and payments. Maintenance expenses were also included as costs.

The analysis to develop the standard was done with the Automated Residential Energy Standard (ARES) software. The ARES was developed by the U.S. Department of Energy (DOE) specifically for the development of residential energy conservation standards. Given a set of fuel price, financial, economic, and ECM costs for a building at a specific location, ARES identifies the set of ECMs to invest in such that the purchaser's total life-cycle cost is minimized.

Several financial, economic, and fuel price parameters were required for the LCC analysis. Because most homes are purchased with financing, the development of the standard was based on a manufactured home purchased with financing. The loan selected has a 14% mortgage rate over 14 years with a down payment of 15%. This discount rate or alternative investment rate was 12%. The inflation rate was 4.9%. The period of analysis and building lifetime were both 33 years. Each state's average residential fuel price were defined for electricity, fuel oil, natural gas, and LPG. Residential fuel price escalation rates (real) were defined by U.S. census region. Nationally, these annual fuel escalation rates averaged: electricity, 0.0% (constant); fuel oil, 2.5%; natural gas, 2.0%; and liquid petroleum gas (LPG); 2.4%.

The ECM options used in the life-cycle cost analysis are based upon cost data and commercial availability as determined from a survey of about one third of the manufacturing plants in the United States. Single and double-wide homes were considered separately when there were significant differences between the ECM characteristics of the two. The ranges of insulation levels included as options are:

Ceilings	R–11 to R–38
Walls	R–7 to R–19
Floors	R–7 to R–22

ECM descriptions and costs were also developed for windows and doors.

Energy Conservation Measures which would lower infiltration were considered, but rejected based on several concerns. Currently new manufactured homes are relatively air-tight, so that a very low natural infiltration rate would result from further tightening. ECM's which could result in very low infiltration rates, can have significant negative impacts on occupant health and compound the problem of condensation control. For these reasons no infiltration control ECMs were considered. The issue of ventilation requirements is addressed as a solution to controlling condensation and indoor air quality separately in II C.

Heating and cooling equipment efficiencies were required for life-cycle cost analysis. The National Appliance and Energy Conservation Act of 1987 (NAECA) minimum standards for heating and cooling system efficiency in manufactured homes were assumed. A procedure to give credit for efficiencies higher than those required by the NAECA was also developed.

Initially, single-and double-wide homes which made use of five specific types of HVAC equipment and fuels were optimized by ARES. The five equipment/fuel types for which optimum U values were produced for each city are: Natural gas with a forced air furnace, LPG with a forced air furnace, oil with a forced air furnace, electric resistance baseboard heaters, and an electric heat pump with forced air distribution. In all cases, an electric air-conditioning system was included.

Rather than selecting a few cities to represent the U.S., all 881 cities available in ARES were used. Selection of all 881 cities included in ARES provided a density of locations such that any point in the U.S. was close to a city for which an optimum U value was produced. This coverage alleviated any bias which might have resulted from selecting a small number of cities to encompass the large area of the country.

The separate HVAC equipment and fuel types were aggregated into U-values for all equipment/fuel types based on the frequency with which each type of equipment was present in each region. Consideration was given to establishing separate fossil and electric U-values, but the combination of all system types was selected as preferable for a number of reasons including simplicity.

After the production of the 881 U-values defined above, the individual U-values were aggregated to four "U" value zones selected as representing the range of optimums found in the U.S. The U-value applicable to each zone was defined as the sales weighted average of the U-values for all states in that zone. The four zones and the U-value requirement associated with each is shown in the proposed rule. Single and double wide U values were determined

to be very similar and were combined into U values for all homes. The zone are designated as Uo zones and the Uo indicates the maximum coefficient of heat transmission that will be acceptable.

The existing Standards divide the country into 3 "U" value Zones. The southern half being Zone I and the northern half Zone II. Alaska is by itself is Zone III. The proposed rule makes Zone II and III into Zone IV except for the States of Kansas, Missouri, Kentucky. The maximum allowed thermal transmission coefficient for most of Zone IV is reduced to 0.079 from 0.126. [The coefficient is expressed as BTUs/(hr)(sq.ft)(F')]. Alaska is reduced to 0.079 from 0.104.

California, Arizona, New Mexico, Oklahoma, Kentucky, Tennessee, and North Carolina would have a coefficient of 0.096. Kansas, Missouri and Kentucky are presently 0.126, the others would be reduced from 0.157. The rest of the present Zone I states, with the exception of Florida are reduced to 0.109 from 0.157. Florida is reduced to 0.132 from 0.157.

The costs and benefits from the consumer's perspective were estimated to compare homes built to the proposed new rule (national average U value of 0.098) with current practice of the industry (average U value of 0.125 to 0.140) and with the existing FMHCSS (Title VI) average U value of 0.145. Nationally, the average present value of the net savings of the investment in energy conservation above current practice was about $800 to $1650 per home and that required by Title VI averaged $2000 per home, based on a sales weighted average for each state. (The present value of the net savings sums the total energy savings and deducts all the ECM costs, mortgage costs, and financing costs, putting all values in terms of present dollars). Nationally the cost of incorporating the ECMs above current practice was estimated to average $800 to $1100 per home and above Title VI were estimated to average $1200 per home. The total of the energy savings for current practice ranged from $1600 to $2800 and for Title VI averaged $3200 over the useful life of the home.

To examine the national total present value of the proposed standard, the average new home U-value for the current practice (rather than the Title VI) minimum U-values for a new home was approximated. The national aggregated present value of the savings for each year in which the proposed standard is in effect is estimated to be $300 million. This value would be about $400 million per year if all homes were assumed to be built to the current standard.

Two alternative methods of compliance are suggested for inclusion in the standard. The first alternative method allows a trade-off between investments which lower a home's U-value and investments in high efficiency HVAC equipment. This alternative gives homes a U-value credit for increases in HVAC efficiency, but does not require the use of equipment above the NAECA standard. The second alternative allows a calculation or simulation of annual energy use to show that a home meets the energy use implicit in the U-value standard.

An appendix to the Standards which will provide one acceptable method for calculating the coefficient of heat transmission has been developed. It will not be mandatory, however, it will indicate a minimum acceptable method for calculating the coefficient of heat transmission (Uo). The appendix document is on file with the Rules Docket Clerk and a copy will be made available to a commentator upon request.

B. The MCC is proposing an alternative energy conservation rule to the one proposed herein. It recommends "U" values, which while significantly more stringent than the existing Title VI standards, are not as stringent as those being proposed.

The significant difference in the optimum "U" value arise from the different assumption used for the time frame used in calculating the life cycle cost. The Department believes the time frame should be based upon the anticipated life of the structures, which for the purposes of the analysis, is 33 years. This is supported by Conference Report 100–426, a statement by Senator Adams in the Congressional Record of November 21, 1987 and in correspondence from Congressman Gonzales. The MCC believes the life cycle cost should be based upon an average length of time the first owner possess the home, which for purposes of their study is 7 years. There are other variations in the two studies, but in general address the cost issues in a very similar manner.

C. Condensation Control and Ventilation Requirements

In conjunction with the proposed energy conservation standards, the Department is proposing amendments to the standards to address the issues of condensation control and indoor air quality. Manufactured homes of today are being constructed with materials and construction systems that require more attention to the problem of dissipating moisture from within the home and from within the ceiling, wall and floor systems. The tighter construction methods employed today have compounded this problem by reducing the natural air flow in and out of these homes. The reduced number of natural air changes per hour raises the concern of how good the indoor air quality is. With the Department issuing proposed new energy conservation standards, the Department believes the issues of condensation control and indoor air quality must also be addressed with corresponding ventilation requirements which are more effective.

To provide adequate ventilation for the interior of the home, the Department is proposing that a combination of mechanical and passive systems be utilized. The ventilation recommendations are from the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard No. 62–1989. Each home would be designed with the capability to exchange the indoor air at the rate of 0.35 air changes per hour. In meeting this objective, a mechanical air intake system providing at least 75 cubic feet per minute intake along with a mechanical or passive exhaust system providing at least 50 cubic feet per minute exhaust shall be installed. The higher intake rate is specified to provide a positive pressure within the home. This system maybe integral with any heating or heating and air conditioning system installed in the home or it may be a system that is separate. In either case, the home ventilating system shall be capable of operating independently of the heating or heating and air conditioning function. The system may have automatic controls, but shall be manually operable at the discretion of the home occupants. Bathrooms and kitchens would be required to have mechanical exhaust systems in all homes regardless of any operable window(s) in these rooms. The exhaust rate for kitchens would be 100 cubic feet per minute. The exhaust rate for bathrooms would be 50 cubic feet per minute. These rates are taken from the ASHRAE Standard No. 62–1989.

The other major ventilation change would be to require ventilation of all attic and roof cavities with the exception of single section homes that have metal roofs and no roof underlayment. The Department's review of the research on the subject indicates that attic or roof cavity ventilation is the primary and most reliable method of removing condensation from this area. It also assists in providing a way for

moisture to escape from the home that is not removed by other methods. A 1978 NIST (formerly NBS) study by Burch and Luna, entitled "A Mathematical Model for Predicting Attic Ventilation Rates for Preventing Condensation on Roofing Sheathing" is a prominent study on the subject. The research also indicated that a vapor retarder should be utilized on the warm side of the attic or roof cavity.

The MCC recommendation would require that only homes having a shingled roof be provided with attic or roof cavity ventilation. Their recommended free ventilation area would be at least equal to 1/500 of the attic or roof cavity floor area when a vapor retarder is utilized. They recommended a ratio of 1/250 when a vapor retarder is not used. The Department could not determine any basis for using these ratios or for using ventilation only with shingled roofs.

The Department has concluded that all attic or roof cavities, except those on certain single section homes, should be ventilated with at least 50% of the open free ventilation area in the upper half of the roof cavity with the remainder to be equally dispersed in the eaves or a low location in the gabled ends. It has also been determined that a vapor retarder should be installed on the warm side of the attic or roof cavity. A free ventilation area equal to at least 1/300 of the attic or roof cavity floor area should be provided. It is believed that this ratio as specified in the Council of American Building Officials, One and Two Family Dwelling Code (CABO, 1 and 2 FDC), has been demonstrated as viable.

Alternatively, a mechanical system would be permitted in the attic or roof cavity to provide the ventilation. A minimum rate of 10 air change per hour would be required. This alternative is derived from recommendations published by the Home Ventilating Institute.

In the southern part of the United States in the zone that would be designated as condensation Zone 2, the manufacturer may leave out the vapor barrier provided the free ventilation area is at least equal to 1/150 (ratio specified in the CABO 1 and 2 FDC) of the attic or roof cavity ceiling area. The condensation zone map is derived from ASHRAE Handbook of Fundamentals—1989.

Certain single section manufactured homes would be excluded from the attic and roof cavity ventilation requirements, because the anticipated cost of revising the design of these homes may entail relatively significant increases. For these homes, however, an interior air exchange rate capability of at least 150 cubic feet per minute would be required.

There are several issues remaining which need to be addressed, and for which proposed amendments to the Standards are yet to be developed.

These are:

1. Given the need for improved thermal efficiency, should the Standards continue to permit the use of the ventilated walls? Should the Standards limit the use of ventilated walls for use only with metal sided homes?

2. Should the placement and location of vapor retarders in exterior walls be related to the condensation zone in which it is to be located?

Comments are solicited on these issues.

III. General Update of the Standards

A. Reference Standards Update

In order to remain abreast of the industries that utilize those reference standards incorporated in the FMHCSS, the Department is proposing to incorporate the latest edition of those standards, and new relevant standards. The following table lists the reference standards found in the MHCSS by issuing organization. The organization name and address is underlined. The column to the right indicates the section of the Standards where the reference is used. To the left of the Standard, an asterisk (*) indicates that the Standard is updated. An "N" indicates the Standard is new.

Standards by issuing organization	24 CFR
Aluminum Association, 900 19th Street NW., Washington, DC 20006	
*AA–1986, Aluminum Construction Manual Sec. 1, Specifications for Aluminum Structures	3280.304(b)(1).
American Architectural Manufacturers Assoc., 1540 East Dandee Rd., Suite 310, Palatine, IL 60067	
(N) AAMA 1503.1—1988, Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows Doors and Glazed Wall Sections.	3280.508(e).
AAMA 1701.2—1985, Primary Window and Sliding Glass Door Voluntary Standard for Utilization in Manufactured Housing	3280.403(b), 3280.403(e), 3280.403(e)(2), 3280.404(b).
AAMA 1702.2—1985, Swinging Exterior Passage Doors Voluntary Standard for Utilization in Manufactured—Housing	3280.405(b), 3280.405(e), 3280.405(e)(2).
AAMA 1704—1985, Voluntary Standard Egress Window Systems for Utilization in Manufactured—Housing	3280.404(b), 3280.404(e)
American Gas Association, 8501 East Pleasant Valley Road, Cleveland, OH 44131	
(N) AGA Requirements for Gas Connectors for Connection of Fixed Appliances for Outdoor Installation, Park Trailers and Manufactured (Mobile) Homes to the Gas Supply. 3–87.	3280.703
American Institute of Steel Construction 400 N. Michigan Avenue, Chicago, IL 60611	
*AISC S335—1989, Specification for the Design, Fabrications, and Erection of Structural Steel for Buildings	3280.304(b)(1), 3280.305(i)(1).
American Iron and Steel Institute, 1000 16th Street NW., Washington, DC 20036	
*AISI—1986 and 1989 addendum, Specification for the Design of Cold-Formed Steel Structural Members	3280.304(b)(1), 3280.305(i)(1).
AISI—1974, Stainless Steel Cold-Formed Structural Design Manual	3280.304(b)(1), 3280.305(i)(1).
AISI—1973, Manual for Structural Applications of Steel Cables for Buildings	3280.304(b)(1)
American National Standards Institute, 1430 Broadway, New York, NY 10018	
ANSI A112.14.1—1975, Backflow Valves	3280.604(a).
*ANSI/ASME A112.18.1M—1989, Finished and Rough Brass Plumbing Fixture Fittings	3280.604(a).
*ANSI/ASME A112.19.1M—1987, Enameled Cast Iron Plumbing Fixtures	3280.604(a).
ANSI/ASME A112.19.2(M)—1982, Vitreous China Plumbing Fixtures	3280.604(a).
*ANSI/ASME A112.19.3M—1987, Stainless Steel Plumbing Fixtures	3280.604(a).

Standards by issuing organization	24 CFR
ANSI/ASME A112.19.4(M)—1984, Porcelain Enameled Formed Steel Plumbing Fixtures	3280.604(a).
ANSI A112.19.5—1979, Trim for Water Closet, Bowls, Tanks, and Urinals	3280.604(a).
ANSI/AHA A135.4—1982, Basic Hardboard	3280.304(b)(1).
*ANSI/AHA A135.5—1988, Prefinished Hardboard Paneling	3280.304(b)(1).
ANSI/AHA A135.6—1989, Hardboard Siding	3280.304(b)(1).
ANSI/AITC A190.1—1983, Structural Glued Laminated Timber	3280.304(b)(1).
(N) *ANSI A208.1—1989, Wood Particleboard	3280.304(b)(1).
ANSI/ASME B1.20.1—1983, Pipe Threads, General Purpose (Inch)	3280.604(a), 3280.703, 3280.705(e), 3280.706(d).
*ANSI/ASME B16.3—1985, Malleable Iron Threaded Fittings	3280.604(a).
*ANSI/ASME B16.4–1985, Cast Iron Threaded Fittings	3280.604(a).
*ANSI/ASME B16.15–1985, Cast Bronze Threaded Fittings 125 and 250 Pound	3280.604(a).
*ANSI B16.18–1984, Cast Copper Alloy Solder-Joint Pressure Fittings	3280.604(b).
*ANSI/ASME B16.22–1989, Wrought-Copper and Copper Alloy, Solder-Joint Pressure Fitting	3280.604(a).
ANSI B16.23–1984, Cast Copper Alloy Solder-Joint Drainage Fittings, DWV	3280.604(a).
*ANSI/ASME B16.26–1988, Cast Copper Alloy Fittings for Flared Copper Tubes	3280.604(a).
*ANSI/ASME B16.29–1986, Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings—DWV	3280.604(a).
*ANSI/ASME B36.10–1985, Welding and Seamless Wrought Steel Pipe	3280.604(a), 3280.703, 3280.705(b)(1), 3280.706(b)(1).
ANSI C73.17–1972, Dimension of Caps, Plugs and Receptacles, Grounding Type	3280.803(g).
*ANSI Z21.1–1987, Household Cooking Gas Appliance with addenda Z21.1a–1989 and Z21/1b–1989	3280.703.
ANSI Z21.5.1–1982, Gas Clothes Dryers Vol. 1, Type 1 Clothes Dryers with Supplement Z21.5.1a–1987	3280.703.
*ANSI Z21.10.1–1990, Gas Water Heaters Vol. 1, Storage Water Heaters with Input Ratings of 75,000 BTU per hour or Less	3280.707(d)(2).
*ANSI Z21.15–1989, Manually Operated Gas Valves	3280.703.
ANSI Z21.19–1983, Refrigerators Using Gas Fuel	3280.703.
ANSI Z21.20–1985, Automatic Gas Ignition Systems and Components	3280.703.
*ANSI Z21.21–1987, Automatic Valves for Gas Appliances with addenda Z21.21a–1989	3280.703.
*ANSI Z21.22–1986, Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems	3280.604(a), 3280.703.
ANSI Z21.23–1989, Gas Appliance Thermostats	3280.703.
*ANSI Z21.24–1987, Metal Connectors for Gas Appliances	3280.702(a)(17), 3280.703.
ANSI Z21.40.1–1981, With Addenda 1a–1982 Gas Fired Absorption Summer Air Conditioning Appliances	3280.703, 3280.714(a)(2).
*ANSI Z21.47–1989, Gas-Fired Central Furnaces [Except Direct Vent and Separated Combustion System Central Furnaces]	3280.703.
*ANSI Z21.64–1988, Direct Vent Central Furnaces, with addenda Z21.64a–1989 and Z21.64b–1989	3280.703.
ANSI Z34.1–1987, For Certification—Third Party Certification Program	3280.403(e)(1), 3280.405(e)(1).
ANSI Z97.1–1984, Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Building	3280.114(b), 3280.304(b)(1), 3280.403(d)(1), 3280.604(a), 3280.607(b)(3)(iii).
*ANSI Z124.1–1987, Plastic Bathtub Units with addenda Z124.1a–1990	3289.604(a).
*ANSI Z124.2–1987, Plastic Shower Receptors and Shower Stalls	3280.604(a).
*ANSI Z124.3–1986, Plastic Lavatories	3280.604(a).
*ANSI Z124.4–1986, Plastic Water Closets, Bowls and Tanks with addenda Z124.4a–1990	3280.604(a).
*ANSI Z223.1–1988, National Fuel Gas Code	3280.703.
American Plywood Association, P.O. Box 11700, Tacoma, WA 98401	
*APA–E–30, APA Design/Construction Guide, Residential and Commercial	3280.304(b)(1).
*APA–H–815, Design and Fabrication of All-Plywood Beams, Suppl. 5	3280.304(b)(1).
*APA–Y–510, Plywood Design Specification	3280.304(b)(1).
*APA–S–812, Design and Fabrication of Plywood Lumber Beams, Suppl. 2	3280.304(b)(1).
*APA–S–811, Design and Fabrication of Plywood Curved Panels, Suppl. 1	3280.304(b)(1).
*APA–U–814, Design and Fabrication of Plywood Sandwich Panels, Suppl. 4	3280.304(b)(1).
*APA–U–813, Design and Fabrication of Plywood Stressed Skin Panels, Suppl. 3	3280.304(b)(1).
(N) *APA PRP E–445, Performance Standards and Policies for Structural Use Panels	3280.304(b)(1).
Air Conditioning and Refrigeration Institute, 1501 Wilson Boulevard, Arlington, VA 22209–2403	
(N) Standard 210/240–89 Unitary Air Conditioning and Air Source Unitary Heat Pump Equipment	3280.511(b), 3280.703, 3280.714(a)(1), (a)(1)(ii), 3280.714(a)(1)(iii).
American Society of Heating, Refrigeration and Air Conditioning Engineers, 1791 Tullie Circle, NE., Atlanta, GA 30329	
*ASHRAE, 1989, Handbook of Fundamentals	3280.508, 3280.511.
American Society of Civil Engineers, 345 East 47th Street, New York, NY 10017–2398	
(N) ASCE 7–88 Minimum Design Loads for Buildings and other Structures	3280.304(b)(1).
American Society of Mechanical Engineers, 345 E. 47th Street, New York, NY 10017	
*ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, "Rules for Construction of Pressure Vessels", 1986	3280.704(b)(2).
(N) ASME/ANSI A112.1.2–1942(R 1979) Air Gaps in Plumbing Systems	3280.604(a).
(N) ASME/ANSI A112.19.7–1987 Whirlpool Bathtub Appliances	3280.604(a).
(N) ASME/ANSI A112.19.8–1987 Suction Fittings for use in swimming pools, wading pools, spas, hot tubs, and whirlpool bathtub appliances	3280.604(a).
(N) ASME/ANSI A112.21.3M–1984 Hydrants for Utility and Maintenance Use	3280.604(a).
(N) ASME/ANSI A112.26.1M–1984 Water Hammer Arrestors	3280.604(a).

Standards by issuing organization	24 CFR
American Society of Sanitary Engineering, P.O. Box 40362, Bay Village, OH 44140	
(N) ANSI/ASSE 1001–1990 Pipe Applied Atmospheric Type Vacuum Breakers	3280.604(a).
(N) ANSI/ASSE 1002–1986 Water Closet Flush Tank Fill Valves (Ballcocks)	3280.604(a).
(N) ANSI/ASSE 1006–1986 Household Dishwashers, Plumbing Requirements for	3280.604(a).
(N) ANSI/ASSE 1007–1986 Plumbing Requirements for Home Laundry Equipment	3280.604(a).
(N) ANSI/ASSE 1008–1980 Household Food Waste Disposer Units, Plumbing Requirements for	3280.604(a).
(N) ANSI/ASSE 1011–1982 Hose Connection Vacuum Breakers Wall Hydrants, Freezeless Automatic Draining	3280.604(a).
(N) ANSI/ASSE 1014–1990 Handheld Showers	3280.604(a).
(N) ANSI/ASSE 1016–1990 Individual Thermostatic Pressure Balancing and Combination Control Vavles for Bathing Facilities	3280.604(a).
(N) ANSI/ASSE 1017–1979 Thermostatic Mixing Valves, Self Actuated For Primary Domestic Use	3280.604(a).
(N) ANSI/ASSE 1019–1978 Wall Hydrants, Freezeless Automatic Draining Anti-Backflow Types	3280.604(a).
(N) ANSI/ASSE 1023–1979 Hot Water Dispensers, Household Storage Type Electrical Plumbing Requirements for	3280.604(a).
(N) ANSI/ASSE 1025–1978 Diverters for Plumbing Faucets with Hose Spray Anti-Siphon Type Residential Applications; Pref. Requirements	3280.604(a).
(N) ANSI/ASSE 1037–1990 Pressurized Fixtures Flushing Devices (Flushometers)	3280.604(a).
American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103	
*ASTM A 53–90a, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless	3280.604(a), 3280.703.
*ASTM A 74–87, Standard Specification for Cast Iron Soil Pipe and Fittings	3280.604(a).
*ASTM A 539–90a, Standard Specification for Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines	3280.703, 3280.705(b)(4).
*ASTM B–42–89, Standard Specification for Seamless Copper Pipe, Standard Sizes	3280.604(a), 3280.703.
*ASTM B 43–88, Standard Specification for Seamless Red Brass Pipe, Standard Sizes	3280.604(a), 3280.705(b)(1).
*ASTM B 88–89(m), Standard Specification for Seamless Copper Water Tube [metric]	3280.604(a), 3280.703, 3280.705(b)(3), 3280.706(b)(3).
*ASTM B 251–88(m) Standard Specification for General Requirements for Wrought Seamless Copper and Cooper-Alley Tubes [metric]	3280.604(a), 3280.703.
*ASTM B 280–88, Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service	3280.703, 3280.705(b)(3), 3280.706(b)(3).
*ASTM B 306–88, Standard Specification for Copper Drainage Tube (DWV)	3280.604(a).
*ASTM C 36–88, Standard Specification for Gypsum Wallboard	3280.304(b)(1).
*ASTM C 564–88, Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings	3280.604(a), 3280.611(d)(5).
*ASTM D 781–68 (73), Standard Test Methods for Puncture and Stiffness of Paperboard, and Corrugated and Solid Fiberboard	3280.304(b)(1), 3280.305(g)(4).
*ASTM D 2016–74 (83), Standard Test Methods for Moisture Content of Wood	3280.304.(b)(1).
*ASTM D 2235–88, Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe Fittings	3280.604(a).
*ASTM D 2564–88, Standard Specification for Solvent Cement for Poly (Vinyl Chloride (PVC) Plastic Pipe Fittings	3280.604(a).
*ASTM D 2661–90, Standard Specification Acrylonitrile-Butandiene Stryrene (ABS) Plastic Drain, Waste and Vent Pipe and Fittings	3280.604(a).
*ASTM D 2665–89a, Standard Specification for Poly (Vinyl Chloride) (PVC), Plastic Drain, Waste, and Vent Pipe and Fittings	3280.604(a).
*ASTM 2846–90, Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot and Cold Water Distribution Systems	3280.604(a).
*ASTM D 3309–89a, Standard Specification for Polybutylene (PB) Plastic Hot and Cold Water Distribution Systems	3280.604(a).
*ASTM D 3311–90a, Standard Specification for Drain, Waste, and Vent (DWV) Plastic Fitting Patterns	3280.604(a).
*ASTM E 84–89a, Standard Test Method for Surface Burning Characteristics of Building Materials	3280.203(a).
*ASTM E 162–87, Standard Test Method for Surface Flammability of Materials Using Radiant Heat Energy Source	3280.203(a).
*ASTM E 773–88 Standard Test Method for Seal Durability of Sealed Insulating Glass Units	3280.403(d)(2).
*ASTM E 774–88 Standard Specification for Sealed Insulating Glass Units	3280.403(d)(2).
*ASTM E–1333–90 Standard Test Method for Determining Formaldehyde levels from wood products under defined test conditions using a large chamber.	3280.405(b).
*ASTM F 628–90 Standard Specification for Acrylonitrile-Butadiene-Stryene (ABS) Plastic Drain, Waste, and Vent Pipe Having a Foam Core.	3280.604(a).
Cast Iron Soil Pipe Institute, 5959 Shallowfind Rd., Suite 419, Chattanooga, TN 37421	
*CISPI–301–90, Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications.	3280.604(a).
*CISPI–310–90, Specification for Cast Iron Soil Pipe Institute's Approved Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications.	
*CISPI–HSN–85, Specification for Neoprene Rubber Gaskets for HUB and Spigot Cast Iron Soil Pipe and Fittings	3280.604(a), 3280.611(d)(5).
Federal Specification, General Services Administration, Specification Branch, Room 6039, GSA Building, 7th & D Sts., S.W., Washington, DC 20407	
L–P–320–B–1973, With 1977 Amendment 1, Pipe and Fittings, Plastic (Polyvinyl Chloride (PVC), Drain, Waste and Vent (DWV)	3280.604(a).
FF–N–105B–1971 With 1977 Amendment 4, Nails Brads, Staples and Spikes, Wire, Cut and Wrought	3280.304(b)(1).
QQ–S–781H–1974, With 1977 Amendment 2 and Notice I, Strapping, Steel, and Seals	3280.304(b)(1), 3280.306(g)(2).
WW–N–351–C–1976 With 1977 Interim Amendment 1, Nipples, Pipe, Threaded	3280.604(a).
WW–P–401E–1974, Pipe and Pipe Fittings, Cast-Iron, Soil	3280.604(a).
WW–P–541E/GEN–1980, Plumbing Fixtures (General Specifications)	3280.604(a).
(N) MSVIFISD–80 Valve, Gate, Bronze, (125, 150 and 200 Pound Threaded Ends, Flange Ends, Solder End and Bronze Ends, for Land Use)	
ZZ–R–765B–1970, With 1971 Amendment 1, Rubber Silicone	3280.611(d)(5).
Hardwood Plywood Manufacturers Association, P.O. Box 2789, 1825 Michael Faraday Drive, Reston, VA 22090	
*HPMA–HP–SG–86, Structural Design Guide for Hardwood Plywood Wall Panels	3280.304(b)(1).
*ANSI/HPMA HP–1983, Hardwood and Decorative Plywood	3280.304(b)(1).
HUD–FHA Use of Materials Bulletin, Department of Housing and Urban Development, 451 7th Street SW., Washington, DC 20410–8000	
HUD–FHA Use of Materials Bulletin—UM–25d–73 Application and Fastening Schedule: Power-Driven, Mechanically Driven and Manually Driven Fasteners.	3280.304(b)(1).

Standards by issuing organization	24 CFR
IIT Research Institute, 10 West 35th Street, Chicago, IL 60616	
J 6461, Development of Mobile Home Fire Test Methods to Judge the Fire-Safe Performance of Foam Plastic Sheathing and Cavity Insulation.	3280.207(a)(4).
International Association of Plumbing and Mechanical Officials, 20001 Walnut Drive South, Walnut, CA 91789-2825	
IAMPO/PS-2-1989, Material and Property Standard for Cast Brass and Tubing	3280.604(a).
P-Traps IAMPO/PS-4-1990, Material and Property Standard for Drains for Prefabricated and Precast Showers	3280.604(a).
IAMPO/PS-5-1984, Material and Property for Special Cast Iron Fittings	3280.604(a).
IAMPO/PS-9-1984, Material and Property Standard for Diversion Tees and Twin Waste Elbow	3280.604(a).
IAMPO/PS-14-1989, Material and Property Standard for Flexible Copper Water Connectors	3280.604(a).
IAMPO/PS-31-1991, Material and Property Standard for Dishwasher Drain Airgaps (Air Breaks)	3280.604(a).
*IAMPO/PS-23-1989, Material and Property Standards for Backflow Prevention Devices	3280.604(a).
IAMPO/TSC-9-1989, Standard for Gas Supply Connectors for Manufacturerd Mobile Homes	3280.703.
IAMPO/TSC-22-1985, Standard for Porcelain Enameled Formed Steel Plumbing Fixtures	3280.604(a).
Military Specifications, Naval Publications Information center, 5801 Tabor Road, Philadelphia, PA 19120	
MIL-L-10547E-1975, Liners, Case, and Sheet Overwarp; Water-Vapor Proof or Waterproof, Flexible	3280.611(d)(5).
National Fire Protection Association, Batterymarch Park, Quincy, MA 02269	
*NFPA 31-1987, Installation of Oil Burning Equipment	3280.703, 3280.707(F).
*NFPA-54-1988, National Fuel Gas Code	3280.703.
*NFPA-58-1989, Storage and Handling Liquefied Petroleum Gases	3280.703, 3280.704(b)(5)(i).
*NFPA-70-1990, National Electrical Code	3280.801 (a) and (b) 3280.8093(k)(1), 3280.803(k)(3), 3280.805(a)(3)(iv), 3280.806(a)(2), 3280.808(a), 3280.808(m), 3280.811(b).
NFPA-90B-1989, Warm Air Heating and Air Conditioning Systems	3280.703.
*NFPA-220-1985, Standard Types of Building Construction	3280.202(a) (4) and (5).
National Forest Products Association, 1250 Connecticut Avenue, NW., Washington, DC 20036	
Span Tables for Joists and Rafter (PS-20-70) (N) FPA-1977	3280.304(b)(1).
*National Design Specifications for Wood Construction (N) FPA-1986 with Supplement Design Value for Wood Construction 1988	3280.304(b)(1).
*Wood Structural Design Data (N) FPA-1986	3280.304(b)(1).
*Design Values for Joists and Rafters (N) FPA-1986	3280.304(b)(1).
National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48105	
*NSF-14-1991, Plastic Piping Components and Related Materials	3280.604(b).
NSF-24-1988, Plumbing System Components for Mobile Homes and Recreational Vehicles	3280.604(b).
National Wood Window and Door Association, 1400 E. Toughy Avenue, Suite G-54, Des Plaines, IL 60018	
*ANSI/NWWDA I.S.1-87, Wood Flush Doors	3280.304(b)(1), 3280.405(c)(2).
*ANSI/NWWDA I.S.2-87, Wood Window Units Window Units	3280.304(b)(1).
*NWWDA-I.S.3-88, Wood Sliding Patio Doors	3280.304(b)(1).
NWWDA-I.S.4-81, Water Repellent Preservative Non Pressure Treatment for Millwork	3280.304(b)(1), 3280.405(c)(2).
U.S. Department of Commerce, National Institute of Standards and Technology Standards, Office of Engineering Standards, Room A-166, Technical Building, Washington, DC 20234	
PS-1-1983, Construction and Industrial Plywood	3280.304(b)(1).
Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096	
SAE-J533b, Flares for Tubing (1972)	3280.703, 3280.705(f)(1), 3280.705(f)(2).
Steel Joint Institute, 1205 48 Avenue N., Myrtle Beach, SC 29577	
*SJI-1990, Standard Specifications Load Tables and Weight Tables for Steel Joists and Joist Girders	3280.304(b)(1).
Truss Plate Institute, 583 D'Onofrio Drive, Suite 200, Madison, WI 53719	
TPI-1985, Design Specifications for Metal Plate Connected Wood Trusses	3280.304(b)(1).
Underwriter's Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062	
*UL 94 Fourth Edition 1991 Test for Flammability of Plastic Materials for Parts in Devices and Appliances	3280.715(e)(1).
*UL 103—Seventh Edition—1989, as Chimneys, Factory Built Residential Type and Building Heating Appliance	3280.703.
UL 109—Fourth Edition—1978, Tube Fittings for Flammable and Combustible Fluids and Refrigeration Service, and Marine Use	3280.703.
*UL 127—Sixth Edition—1988, as ammended through 1991, Factory-Built Fireplaces	3280.703.
UL 174—Seventh Edition—1989, as amended through 1991, Household Electric Storage Tank Water Heater	3280.703
UL 181—Seventh Edition—1990, Factory Made Air Ducts and Connectors	3280.703, 3280.715(e).
*UL 217—Third Edition—1985, as amended through 1989, Single and Multiple Station Smoke Detectors	3280.208(c).
*UL 307A—Sixth Edition—1990, Liquid Fuel-burning Heating Appliances for Mobile Homes and Recreational Vehicle	3280.703, 3280.707(f).
*UL 307(B)—First Edition 1982, as amended through 1987, Gas Burning Heating Appliances for Mobile Homes and Recreational Vehicles.	3280.703.
*UL 311—Seventh Edition 1990, Roof Jacks for Mobile Homes and Recreational Vehicles	3280.703.
*UL 441—Seventh Edition—1991, Gas Vents	3280.703.
*UL 465—Seventh Edition—1982, as amended through 1987, Central Cooling Air Conditioners	3280.703.
*UL 559—Fourth Edition—1985, as amended through 1987, Heat Pumps	3280.703.

Standards by issuing organization	24 CFR
*UL 569—Sixth Edition—1990, Pigtails, and Flexible Hose Connectors for LP-Gas	3280.703, 3280.705(1)(1).
*UL737—Sixth Edition—1980, as amended through 1991, Fireplace Stoves	3280.703.
*UL 1025—Second Edition—1980, as amended through 1991, Electrical Air Heaters	3280.703.
*UL 1042—Third Edition—1987, Electric Baseboard Heating Equipment	3280.703.
*UL 1096—Fourth Edition—1986 as amended through 1988, Electric Central Air Heating Equipment	3280.703.
*UL 1486—Third Edition—1988, Room Heaters Solid-Fuel Type	3280.703.

The following Standards would be deleted from the FMHCSS as they are obsolete and have been withdrawn by the issuing organization:

ANSI C72.1 1972, Household Automatic Storage Type Water Heaters

ARI Standard 210-81 for Unitary Air Conditioning Equipment

ARI Standard 240-81 for Air Sound Unitary Heat Pump Equipment

ASTM A120–83 Standard Specifications for Pipe, Block Hot dipped Zinc Coated (Galvanized) Welded and Seamless for Ordinary Uses.

CISPI 310–85

FTM-2-1985 Large Scale Test Method for Determining Formaldehyde Emissions from Wood Products.

ANSI A58.1–1982 Building Code Requirements for Minimum Design Loads in Buildings and other structures.

GAL Standard for Fireplace Stoves for installation in Mobile Structures

B. Other Proposed Amendments

Amendments are being proposed to the Standards in response to recommendations submitted by the respective Manufactured Home Construction and Safety Standards Committees of CABO and the MCC. Other amendments are being proposed by the Department in response to needs identified from working with the Standards. Following is a discussion of those changes by section.

Section 3280.1 Scope

This section is amended to delete those requirements pertaining to waivers and interpretive bulletins. These requirements would be relocated in new §§ 3280.8 and 3280.9 respectively.

Section 3280.2 Definition

Old paragraph (2) definition of "center", is deleted because it does not appear in the FMHCSS.

New paragraph (2) is added to provide definition of a "Bay Window". The definition is needed to establish minimum square footage of the home for coverage under the Act.

Old paragraph (4) "Combustible material" is deleted as the definition conflicts with the perferred definition of "combustible materials" in § 3280.202(a)(1).

Old paragraph (5) "defect" and (10) by "imminent safety hazard" are deleted. They are more appropriate located in 24 CFR part 3282, the Manufactured Home Procedural and Enforcement Regulations.

Section 3280.3 Acceptance of Plans

The existing Section is deleted and replaced with a new Section titled "Procedural and Enforcement Regulations and Consumer Manual Requirements".

Section 3280.4 Incorporation by Reference

Paragraph (a) is amended to clarify that reference standards have the same force and effect as the FMHCSS.

Paragraph (b) is amended to provide an updated list of the names and address of those organizations whose standards are referenced in the FMHCSS.

Section 3280.5 Data Plate

This change recommended by the MHI Standards Committee incorporates the language of interpretive bulletin A–2–77 on the durability requirements for data plates. A new requirement to provide the Departments certification label(s) number(s) to the data plate is also being proposed.

Section 3280.8 Waivers

A new Section is being proposed to set forth the requirements for waivers that were previously located in § 3280.1. The changes substantially incorporate the MCC Standards Committee's recommendation except that the Department perfers to retain the term "waiver" as opposed to using the new terminology "determination of equivalency."

Section 3280.9 Interpretative Bulletins

A new Section is being proposed to set forth the provision on interpretative bulletins previously located in § 3280.1.

Section 3280.10 Use of Alternative Construction

A new Section is being proposed to clarify that certain homes that do not conform to the FMHCSS in all respects are permissble when certain criteria found in the Procedural and Enforcement Regulations are followed. This is a MCC recommendation.

Section 3280.11 Certification Label

This Section has been renumbered from § 3280.8. Additionally, certain language pertaining to transition labels used at the time the FMHCSS were implemented that is no longer needed is being deleted.

Section 3280.103 Interior Light and Ventilation

This section would be editorially amended to present the lighting requirements separately from the ventilation requirements. The lighting requirements would be in paragraph (a) and the ventilation requirements in paragraphs (b), (c), (d), and (e).

The lighting requirements in paragraph (a) would reflect the following revisions. The use of artificial light in place of exterior windows would be permitted now for laundry areas, utitlity rooms, and storage rooms. It would be permissible to combine the space of adjoining rooms to meet the lighting requirements provided at least 50 percent of the common wall area is open and the open wall area is at least equal to 10 percent of the combined floor area. The CABO Standards Committee recommended the second change.

Paragraph (b) would reflect the following revisions to the present requirements. Each home would be capable of having sufficient ventilation to provide .35 air changes per hour, have a mechanical system which would intake 75 cubic feet of air a minute, and an exhaust system capable of exhausting 50 cubic feet of air per minute. (Refer also to the general write up on condensation control and ventilation.)

Paragraph (c) would specify the revised kitchen ventilation requirements. The present requirements specify an air change every 30 minutes. The new requirements would specify the capability to exhaust at the rate of 100 cubic feet per minute.

Paragraph (d) would specify the revised bathroom and toilet

compartment ventilation requirements. The present requirements specifies an air change every 12 minutes. The new requirements would specify the capability to exhaust at the rate of 50 cubic feet per minute.

In paragraphs (c) and (d) the changes would reflect that ventilation through openable windows would not meet these new requirements except for a toilet compartment.

Paragraph (e) would establish a ventilation rate of 10 cubic feet per minute for all rooms, other than bathrooms, toilet compartments and kitchens, that do not have exterior walls.

Section 3280.105 Exit Facilities

Paragraph (b)(2) would be amended to incorporate interpretive bulletin B–1–76 which clarifies that swinging exterior doors stops may not reduce the clear opening to less than 73 inches in height and 27 inches in width.

Section 3280.109 Space Planning

The existing section does not provide any identifiable requirements, and therefore is being deleted.

Section 3280.112 Hallways

Existing § 3280.113 would be renumbered as §3280.112 and a new paragraph (b) would be added incorporating interpretative bulletin B–3–76. This would clarify that an interior door shall have at least 27 inches clear width if the interior door must be passed through to reach an exterior door. This would not apply to interior passage doors which only provide interior access to another room or other interior area.

Section 3280.203 Flame Spread Limitations and Fire Protection Requirements

Paragraph (a) would be editorially amended to include that list of materials which need not be flame spread tested in accordance with ASTM E–84 or ASTM E–162. This list was inadvertently deleted from the FMHCSS when the February 12, 1987 amendments were published.

Paragraph (b)(4) would be amended to clarify that vertical surface within 6 inches horizontally of the cooking range are subject to flame spread and combustibility requirements pertaining to cooking range areas.

Section 3280.208 Fire Detection Equipment

Paragraph (d) would be amended to permit locating smoke detectors on walls at a distance permitted by the smoke detector's listing.

Section 3280.303(g) Alternate Test Procedures

The section would be amended editorially. The revised rule clarifies that the Department will assess the adequacy of this test.

Section 3280.304 Materials Reference Standards Would be Updated

Refer to previous reference Standards table.

Section 3280.305 Structural Design Requirements

Paragraph (c), at the recommendation of the MCC, would be amended to incorporate interpretative bulletin D–3–76. It clarifies that roof slopes of 20 degrees or less may be excluded from the horizontal wind calculation.

Paragraph (d) would be amended to incorporate interpretative bulletin D–5–76 at the recommendation of the MCC. It clarifies that the deflection limit for cantilevered roof section is 2 times the length divided by 180. Additionally, it would be clarified that the uplift loads specified in § 3280.305(c)(1) and (2) are required by § 3280.305(c)(3)(iii) to be increased by a factor of 2.5.

Paragraph (f)(2) would be amended at the recommendation of the MCC to incorporate interpretative bulletin D–6–76. This permits increasing the allowed stress on interior walls by 1.33.

Paragraph (g)(2) would be amended at the recommendation of the MCC to incorporate the provisions of interpretative bulletin D–8–76. This clarifies the application of coverings and sealants to wood floors subject to moisture.

A new paragraph (g)(3) would be added to permit the installation of carpet in a laundry space when the laundry appliances are not provided with the home.

Section 3280.306 Windstorm Protection

Paragraph (a) would be amended at the recommendation of the MCC to incorporate interpretative bulletin D–7–76. This clarifies that 1.5 factor of safety is only applied to the tie down system and it is not required to be applied to the structure of the home.

Section 3280.309 Health Notice on Formaldehyde Emission

Paragraph (b), at the recommendation of the MCC, would be amended to delete the requirement that the title be printed with the color red.

Paragraph (d) would be amended to correctly cite 24, CFR part 3283 rather than 24 CFR part 3282 which is incorrect.

Section 3280.401 Structural Load Test

Paragraph (b) would be amended to clarify that 2.5 is the lowest factor of safety that will be acceptable when testing under the ultimate load test procedures. This clarification is based upon interpretive bulletin E–1–76.

Section 3280.504 Condensation Control and Installation of Vapor Retarders

Paragraph (a) would be revised to permit the ceiling vapor retarder to be omitted in the southern condensation zone, Zone II, when the attic or roof cavity ventilation open area is at least equal to 1/150 of the attic or roof cavity floor area.

A new paragraph (b) would be incorporated to require all attic and roof cavities to be ventilated. Paragraph b(1) would specify the minimum free ventilation area equal to 1/300 of the attic or roof cavity or permit a mechanical system capable of changing the air ten times in an hour.

A new paragraph (b)(2) would exclude single section homes with metal roofs having no roof underlayment from the requirements of paragraph (b)(1) providing the interior of the home can be ventilated at the rate of 150 cubic feet per minute and extra steps are taken to seal the roof cavity from interior moisture migration.

A new paragraph (b)(3) would specify that 50 to 60 percent ventilation free area will be in the upper half of the attic or roof cavity.

A new paragraph (b)(4) would establish the condensation zones and refer to a new figure 1 which would indicate the zones on the map of the United States.

A new paragraph (b)(5) would specify that the free ventilation area shall be designed to prevent the entry of rain, snow and insects.

Section 3280.506 Heat Loss

This section would be amended to use the term "U" Value Zones" in place of "Winter Design Temperature Zones." The section would be amended to incorporate the maps designating the "U Value Zones" of which there are four.

Paragraph (a) would be amended to incorporate the following "Maximum Transmission Coefficients": Zone 4–0.079, Zone 3–0.096, Zone 2–0.109, and Zone 1–0.132. The coefficient is in terms of Btu/(hr)(sq. ft.) (degree F).

Paragraph (c) would be amended to require storm window or insulating glass for homes designated for Zone 4.

(The proposed amendments to significantly improve the overall Heat Loss characteristics of manufactured

homes are described in more detail in the previous discussion.)

Section 3280.508 Heat Loss, Heat Gain and Cooling Load Calculations

It is proposed to amend this section to incorporate the applicable section of the 1989 edition of the ASHRAE Handbook of Fundamentals and a new paragraph incorporating an appendix to the Standards which will outline an acceptable heat loss/heat gain method (see previous discussion on Energy Condensation II a).

Section 3280.510 Heat Loss Certificate

It is proposed to amend the certificate to be compatible with the revised Zones being proposed.

Section 3280.511 Comfort Cooling Certificate and Information

It is proposed to amend the certificate to be compatible with the revised Zones being proposed.

Section 3280.602 Definitions

It is proposed to add the definitions of (1) Flushometer tank; (2) Plumbing appliance; (3) Plumbing appurtenance; (4) Whirlpool bathtub.

Section 3280.603 General Requirements

Paragraph (a)(5) would be amended to clarify the applicability the reference standards. It would further clarify that in absence of an appropriate standards being specified, the plumbing component is to be listed as suitable for the intended use.

Section 3280.604 Materials

Paragraph (a) would be amended to incorporate the updated reference standards discussed previously.

Paragraph (b) would be amended to clarify that where two standards for a component are indicated, it is only necessary to conform to one of them except when evaluation of toxicity is necessary.

Section 3280.604 Materials

At the recommendation of CABO, several new standards are being proposed for inclusion into the reference standard tables. Refer to write up on reference standards.

Section 3280.606 Traps and Clean-outs

Paragraph (b)(1)(iii) would be amended at the recommendation of CABO to permit the removal of a water closet to provide the clean out access to the drain lines.

Section 3280.607 Plumbing Fixtures

Paragraph (b) would be amended to delete several references to the term "toilet" and replace with the term "water closet".

Paragraph (b)(4) would be amended to permit the use of high loop in the drain system of a dishwasher. Additional clarification is also added on the use of a standpipe for a dishwasher.

Paragraph (c) would be amended to incorporate interpretive bulletin G–2–77(a) to clarify that fixture diverter valves do not require direct access.

At the recommendation of CABO, it is proposed to add new paragraphs (c)(5) and (c)(6). (c)(5) would specify that the hot water supply to a fixture faucet, fitting, or diverter shall always be on the left. (c)(6) adds criteria for access and installation of Whirlpool bathtub drainage systems.

Section 3280.609 Water Distribution Systems

Paragraph (b)(5) and (b)(6) would be amended to change references from "toilets" to "water closets".

At the recommendation of CABO, a new paragraph (b)(7) is being proposed to require exterior hose bibs to be protected by a listed non-removable backflow prevention device.

At the recommendation of CABO, a new paragraph (b)(8) is being proposed to require flushometer tanks to be installed with an air gap or vacuum breaker located above the fixture flood level.

Paragraph (d)(1)(i) would be amended to delete the terminology "approved or listed" and replaced with "listed". The term approved is redundant as all plastic plumbing components must be listed.

Paragraph (e)(3) would be amended to clarify that any solder used in the water distribution system shall not contain more than 0.2 percent lead.

Section 3280.610 Drainage Systems

Paragraph (c)(5) would be amended to clarify the manufacturers responsibilities for drainage systems which require on site assembly. The clarification assures that the manufacturer provides all the materials and appropriate installation instructions.

Paragraph (d) and (e) would be amended to use the term "water closet" instead of "toilet".

Section 3280.612 Test and Inspection

Paragraph (b)(3) would be amended to use the term "water closet" instead of "toilet".

Section 3280.702 Definitions

At the recommendation of CABO, the definition of "Connector gas", paragraph (a)(17) would be amended to be more descriptive as to its function and delete the referenced to a specific reference standard.

Section 3280.703 Minimum Standards

It is proposed to amend this section by clarifying that compliance with only one of the incorporated reference standards suffice to met the requirement of the FMHCSS.

The table would be amended to incorporate the latest edition of the standard reference. Refer to the previous write up on reference standards.

Section 3280.705 Gas Piping System

At the recommendation of the MCC, paragraph (c) requirements for gas line interconnection of multiple unit Section of manufactured homes would be amended to permit permanent pipe and listed connectors. In addition, the Department is proposing that a shut off valve be required when connectors are utilized.

Section 3280.705 is amended to delete the table for gas line systems that are sized for liquified petroleum (LP) gas only. It is being proposed that all gas lines be sized to handle both LP and natural gas. Other references to LP only systems are being deleted from Subpart H.

At the recommendation of CABO, paragraph (1)(2) would be amended to clarify that appliance connectors may be installed through openings in cabinetry walls.

Paragraph (1)(2)(ii) and (1)(3) would be amended to clarify that shut off valves for appliances are to conform to ANSI Z21.15–1989 and are to be of the non-displaceable rotor type.

Section 3280.708 Exhaust Duct System and Provision for the Future Installation of a Clothes Dryer

Paragraphs (b)(3) and (c)(1) would be amended to incorporate the requirements for a roughed in moisture lint exhaust system which are currently provided by interpretive bulletin H–1–77.

Section 3280.709 Installation of Appliances

Paragraph (e)(6) would be amended to incorporate the requirements of interpretive bulletin H–2–76. This clarifies the manufactured home manufacturers responsibilities in preparing the home to connect external heating or combination cooling/heating appliances at the set-up site.

Section 3280.710 Venting, Ventilation and Combustion Air

Paragraph (b)(1) would be amended to incorporate the requirements of interpretive bulletin H–2–78 as amended on February 27, 1979. This permits that section of a fuel fired heating appliance vent that is above the roof line to be shipped loose and installed at the set-up site.

Section 3280.713 Accessibility

It is proposed to amend this section to clarify that the gas risers to an appliance may be removable to permit replacement of the appliance.

Section 3280.714 Appliance Cooling

At the recommendation of the MCC, it is proposed to incorporate new paragraph (a)(4) and (a)(5) to clarify the testing and certification requirements for cooling and heat pump coils that are installed in a furnace or heating appliance. The certification shall insure that they are rated in combination with the heating appliance or furnace, and in combination with the outdoor section of the system. Additional language has been included to insure that safety is addressed and to implement the Department of Energy procedures.

Section 3280.715 Circulating Air System

It is proposed to amend paragraph (b)(4) to clarify the area calculation for return air when doors are undercut for this purpose. Specifically, it clarifies that the measurement is made from the hard floor deck and not the carpet surface.

Subpart I Electrical Systems

It is proposed to update all references to the National Electrical Code NFPA no. 70, to incorporate the 1990 edition of that document. CABO and MCC both recommended this change.

Section 3280.801 Scope

Paragraph (c) would be amended to editorially change references to 115/230 volts to 120/240 volts. This would make the FMHCSS consistent with the National Electrical Code.

Section 3280.804(j) Disconnecting Means and Branch Circuit Protection Equipment

Paragraph (j) would be amended to correct the editorial error on the tag for the power supply entrance. The blank space for the correct ampere rating is being repositioned.

A new paragraph (k) would be added to clarify that a common main disconnect is used services and distribution equipment that it shall be rated and listed as suitable for service equipment.

A new paragraph (l) would be added to provide a service entrance tag that is compatible with a 3 wire service connection.

Section 3280.805 Branch Circuit Required

Paragraph (a)(2) would be amended to no longer require the family room to be supplied with a small appliance branch circuit. This would make the FMHCSS compatible with article 220–4 of the NEC.

Paragraph (a)(3)(ii) would be amended editorially to clarify the circuits with motor loads, or any continuous duty load may not have a load that exceeds 80 percent of the branch circuit rating.

Paragraph (a)(3)(v) would be amended to clarify that a laundry area must be provided with a 20 ampere circuit dedicated for laundry room use only.

Section 3280.806 Receptacle Outlets

Paragraph (b) would be editorially amended to specify that receptacles in compartments accessible from the outdoors are required to be ground fault protected. It is being editorially removed from paragraph (d)(8) to alleviate the confusion over whether or not such a receptacle can be considered the required outdoor receptacle.

Paragraph (c) would also be amended to clarify that dedicated laundry receptacles provided in areas that are part of a bathroom are not required to have a ground fault protection.

Paragraph (d)(1) at the recommendation of CABO would be amended to permit a duplex receptacle to simultaneously serve as the dedicated outlet for a refrigerator and a counter top.

Paragraph (d)(7) would be amended to clarify that the receptacle in a laundry area is to be within 6 feet of the intended location of the appliance(s).

Paragraph (d)(8) would be amended to delete the language pertaining to receptacles located in compartments accessible from the outdoors. It is being located in paragraph (b).

Section 3280.807 Fixtures and Appliances

Paragraph (c) would be amended to cross reference Article 410–4(d) of the National Electrical Code. This article clarifies that no hanging or pendant type fixture may be installed within 3 feet horizontally or eight feet vertically of a bathtub rim.

Paragraph (e) would be amended to permit the use of "limited combustible" material as a fixture flash ring as "limited combustible" is currently defined and permitted in subpart C.

Existing paragraph (g) would be deleted. These provisions apply to the installation of hydro massage bathtubs. Previously, when the 1984 edition of the National Electrical Code was referenced, hydro massage bathtubs would have been treated as hot tubs or spas unless special consideration was provided. The 1990 edition of the National Electrical Code provides appropriate criteria for installing hydro massage bathtubs. Accordingly, those provisions in the FMHCSS are no longer necessary.

Section 3280.808 Wiring Methods and Materials

A new paragraph (g) would be added to incorporate the provision of interpretive bulletin I–1–80 to provide the performance requirements for a substantial brace used to support electrical outlet boxes.

A new paragraph (r) would be added to establish a limit of ⅛ inch as the permissible oversize limit for close fitting of electrical boxes in combustible walls and ceilings. ⅛ inch is the limit currently being enforced.

A new paragraph(s) would be added to clarify that N. M. cable sheathing can be repaired provided the conductors are not damaged.

Section 3280.809 Grounding

Paragraph (b)(1) would be amended to clarify that when service equipment is installed on manufactured homes, it is permissible to have the ground and neutral buses in the distribution panel remain interconnected.

Section 3280.810 Electrical Testing

Paragraph (a) would be amended to incorporate interpretive bulletin I–1–78. This clarifies the acceptable range of voltages that can be used and exactly which conductors must be tested against each other during the dielectric test.

Paragraph (b) would be amended to revise the operational check to exclude major listed appliances from the check and would revise the polarity test to permit visual inspection.

Section 3280.811 Calculations

Numerous references to voltage would be changed to read 120/240 volts from 115/230 volts.

Section 3280.813 Outdoor Outlets, Fixtures and Air Conditioning Equipments

It is proposed to amend paragraph (a) to specify a listing for outdoor fixtures

and equipment of "suitable for use in wet locations."

C. Recommendations Not Adopted

1. Many of the recommendations provided by the CABO committee dealt with reference Standards. Two of these reference standards were not included because the Department could not verify that they were the latest edition or the most appropriate edition. AISC–S326–1978 is not listed in the AISC literature as having a 1986 supplement. FS ZZ R 765C–86 is listed in the source document from the General Services Administration. However, it does not replace 765B–1970 which is also listed.

2. CABO recommended that a definition of "direct vent" system be included in Subpart H. However, the Department believes that the more stringent definition of "sealed combustion" is needed for the FMHCSS.

3. The MCC recommended that a provision be incorporated stating reference standards shall be reviewed and updated every 3 years. The Department concludes, however, this is a policy and operational concern and not a standards issue.

4. The MCC recommended that the additional words "Important Document, Do not remove, alter or destroy" be added to the Data Plate. The Department does not believe that a problem has been identified which would justify making the addition.

5. The MCC recommended that the term "Waiver" be replaced with the term "Determination of Equivalency". The Department prefers "waiver". However, it would consider the alternative if public comment supported the change.

6. The MCC recommended that the Standard specify that the Department respond to all requests for alternative test procedure approval within 60 days. The Department does not object to 60 days. However, it considers turn around time to be an administrative issue and not a regulatory matter.

7. The MCC recommended that a formaldehyde emission standard be set for medium density fiberboard. The Department, however, believes that since the real question of how critical the threat from formaldehyde is yet to be resolved, that it would be premature to propose a rule at this time.

8. In § 3280.401(b) the procedures for ultimate load test would be amended to incorporate interpretative bulletin E–1–76. The Department could not accept the entire MCC recommendation in this change. The Department believes that for the alternative load test a factor of safety of 2.5 or greater is necessary. Also, the Department believes that the failure criteria-rupture, fracture, and excessive yielding are determinable and should be retained.

9. The MCC proposal for a revised test procedure for roof trusses is presently being reviewed by the Department. It would be the Department's intention to incorporate an amended procedure, such as proposed by the MCC, upon being assured that the procedure is adequate.

10. The MCC proposed definitions for "single package system" and "heat pump split system". This proposal was not accepted as a basis for their need isn't foreseen. Further, there may be the potential for conflict with future Department of Energy directive on this subject.

11. The MCC proposed that the mandatory enforcement dates for water heater, furnace, air conditioner and heat pump appliance energy efficiency standards prescribed by the National Appliance Energy Conservation Act be specified in the FMHCSS. The Department believes it is more appropriate to issue a notice to announce that the Department of Energy rules supersede those of the Department.

12. The MCC proposed that smoke detectors be allowed on ceilings. The Department recognizes that other building codes permit this location. However, data has not been presented to indicate that the dead air space found at the ceilings of manufactured home is any less of a problem that it was 13 years ago.

13. The MCC proposed condensation control measures for ceilings/roof cavities to include natural and mechanical ventilation means. The levels proposed by the MCC, however, are less than generally recognized workable levels. Due to insufficient data being presented, the Department is proposing levels that are higher than those recommended by the MCC.

D. Comments Requested

Comments are requested on the proposed energy conservation amendments to assist the Department in implementing the 1987 amendment to the National Manufactured Home Construction and Safety Standards Act. Of particular concern to Congress is that the cost be based upon the impact on the consumer. Accordingly, data which can assist in more accurately defining the economic effects as required by the amendment to the Act is requested.

Specific comments are requested on two of the financial parameters (i.e.-discount rate and fuel price escalation rates) used to develop the level of insulation required in the proposed energy conservation amendments.

The discount rate or alternative investment rate used to develop the proposed standard was 12% (7% real discounting for inflation of 5%). In addition to the proposed maximum U-values, the department has evaluated maximum U-value requirements based on alternative real investment rates of 4 and 10 percent.

The appropriate alternative investment rate is not the rate of interest at which the affected population can borrow to finance investments in energy efficiency nor is it the rate it can earn in a savings account. Rather, it is the rate of return required of equivalent investments. It is in the new home buyer's self interest to invest in only those energy conservation measures that pay a rate of return greater than or equal to that of an alternative investment that exhibits equivalent characteristics, including both liquidity (ease with which they can be converted to cash) and risk.

Generally, the more risky and the more illiquid any investment, the greater the rate of return investors will require. Most investments in energy conservation measures are highly illiquid, long-term investments. Further, they are subject to some risk since they depend on unknown factors, such as future energy prices and weather patterns. The required rate of return of such investments may be relatively high. In light of these observations, the department seeks comment on the appropriate discount rate.

The national fuel price escalation rates used to develop the proposed standard averaged: Electricity, 0.0% (constant); fuel oil, 2.5%; natural gas, 2.0%; and liquid petroleum gas (LPG), 2.4%. These rates were based on long term projections from the Federal Energy Management Program (FEMP) and are similar to projections from the Energy Information Administration (EIA). Other fuel price escalation rates for which an arguement could be made include using 0.0% escalation based on the fact that some (real) fuel prices have held fairly constant over the last several years and projecting them this would hold true for the future.

The impact on the maximum U-value requirements of the alternative discount rates and fuel price escalation rates are shown below:

Zone	Proposed(7% real discount rate, FEMP fuel escalation)
1	0.132
2	0.109
3	0.096
4	0.079
National	0.096

Zone	Alternate(4% real discount rate, FEMP fuel escalation)
1	0.121
2	0.100
3	0.088
4	0.072
National	0.090

Zone	Alternate(10% real discount rate, constant real fuel prices)
1	0.150
2	0.124
3	0.109
4	0.090
National	0.112

Comments are solicited on which discount rate most likely relates to the manufactured home purchaser and which fuel prices we will see in the future based on dwindling nonrenewable resources.

Comments are requested on the issue of condensation control. As homes become more energy efficient, the removal of moisture from within the home and the home structure becomes more difficult. The increased use of exterior siding and roofing materials more commonly associated with the traditional single family site built structures, has raised questions concerning the viability of the existing condensation control requirements solutions are needed for the problems that arise from the improved energy conservation measures and when upgraded siding and roofings are used. Most specifically, what is the cost impact of imposing improved ventilation requirements simultaneously with improved energy conservation measures.

Comments are also solicited on all areas of the Standards. In addition to those changes specifically proposed, the Department is soliciting information relating to the following problem areas.

Numerous request have been made to clarify the safety glazing requirements. A need to identify the locations requiring safety glazing is indicated. Additionally, suggestions have been received asking that certain decorative and design considerations be excluded from the safety glazing requirements. Comments are requested on this subject.

The existing standards require that an outdoor heat tape receptacle outlet cannot be protected by a ground fault circuit interrupter because numerous cases of nuisance tripping were reported. More recent input indicates that the nuisance tripping problem has been rectified. Further, it has been suggested that a ground fault circuit interrupter should be required to reduce the probability of fires from improperly installed heat tapes. Comments are requested on this issue.

Findings and Certification

A Finding of No Significant Impact with respect to the environment has been made in accordance with HUD regulations at 24 CFR part 50, which implement section 120(2)(C) of the National Environmental Policy Act of 1969. The Finding of No Significant Impact is available for public inspection between 7:30 a.m. and 5:30 p.m. weekdays in the Office of the Rules Docket Clerk at the above address.

This rule does constitute a "major rule" as that term is defined in section 1(d) of the Executive Order on Federal Regulation issued by the President on February 17, 1981. An analysis of the rule indicates that it does: (1) Have an annual effect on the economy of $100 million or more, (2) cause a major increase in costs or prices for consumers and individual industries. It does not cause a major increase in cost or prices for Federal, State, or local government agencies, or geographic regions. It does not have a significant adverse effect on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets. The Regulatory Impact Analysis is available for public Inspection between 7:30 a.m. and 5:30 p.m. weekdays in the Office of the Rules Docket Clerk at the above address.

Under 5 U.S.C. 605(b) (the Regulatory Flexibility Act), the Undersigned hereby certifies that this proposed rule does not have a significant economic impact on a substantial number of small entities. As required by the Act, this proposed rule must balance the increased cost with real savings in energy cost.

This rule is listed as sequence number 1394 under the Office of Housing in the Department's semiannual agenda of regulations published on October 21, 1991 (53380, 53406) under Executive Order 12291 and the Regulatory Flexibility Act.

Executive Order 12612, Federalism

The General Counsel, as the Designated Official under section 6(a) of Executive Order 12612, Federalism, has determined that the policies contained in this rule will not have substantial direct effects on States or their political subdivisions, or the relationship between the Federal government and the States, or on the distribution of power and responsibilities among the various levels of government. As a result, the rule is not subject to review under the Order.

Specifically, the requirements of this rule are directed to manufacturers and do not impinge upon the relationship between the Federal government and State and local governments.

Executive Order 12606, The Family

The General Counsel, as the Designated Official under Executive Order 12606, The Family, has determined that this rule does not have potential for significant impact formation, maintenance, and general well-being, and thus, is not subject to review under the Order. The rule involves requirements for property improvements and manufactured home loans insured by the Department. Any effect on the family would likely be indirect and insignificant.

List of Subjects in 24 CFR Part 3280

Fire prevention, Housing standards, Incorporation by references, Manufactured homes.

Accordingly, it is proposed to amend 24 CFR part 3280 as follows:

PART 3280—MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS

1. The authority citation for 24 CFR part 3280 is revised to read as follows and the authority citations following all of the sections in part 3280 are removed:

Authority: Secs. 604 and 625 of the National Manufactured Housing Construction and Safety Standards Act of 1974 (42 U.S.C. 5403 and 5424); Sec. 7(d), Department of Housing and Urban Development Act (42 U.S.C. 3535(d)).

Subpart A—General

2. Section 3280.1 is proposed to be revised to read as follows:

§ 3280.1 Scope.

This standard covers all equipment and installations in the design, construction, transportation, fire safety, plumbing, heat-producing and electrical systems of manufactured homes which are designed to be used as dwelling units. This standard seeks to the maximum extent possible to establish performance requirements. In certain instances, however, the use of specific requirements is necessary.

3. Section 3280.2 is proposed to be amended by removing the paragraph designations from the section, by revising the introductory paragraph, by removing the definitions for "Center", "Combustible Material," "Defect," and "Imminent safety hazard", and by adding in alphabetical order the definition for "Bay Window," to read as follows:

§ 3280.2 Definitions.

Definitions in this subpart are those common to all subparts of the standard and are in addition to the definitions provided in individual parts. The definitions are as follows:

* * * * *

Bay Window—a window assembly whose maximum horizontal projection is not more than two feet from the plane of an exterior wall and is elevated above the floor level of the home.

* * * * *

4. Section 3280.3 is proposed to be revised to read as follows:

§ 3280.3 Manufactured Home Procedural and enforcement regulations and manufactured home consumer manual requirements.

A manufacturer must comply with the requirements of this part and in addition must comply with the requirements of 24 CFR Parts 3282 Manufactured Home Procedural and Enforcement Regulation and 3283 Manufactured Home Consumer Manual Requirements.

5. Section 3280.4 is proposed to be amended by revising paragraphs (a) and (b) to read as follows:

§ 3280.4 Incorporation by reference.

(a) The specifications, standards and codes of the following organizations are incorporated by reference in this Standard pursuant to 5 U.S.C. 552(a) and 1 CFR part 51 as though set forth in full. The incorporation by reference of these standards has been approved by the Director of the Federal Register. Reference standards have the same force and effect as this Standard except that whenever reference standards and this Standard are inconsistent, the requirements of this Standard prevail to the extent of the inconsistency.

(b) The abbreviations, and addresses of organizations issuing the referenced standards appear below. Reference standards which are not available from their producer organizations may be obtained from the Office of Manufactured Housing and Construction Standards, Manufactured Housing Standards Division, U.S. Department of Housing and Urban Development, 451 Seventh Street, SW., Washington, DC 20410.

AA—Aluminum Association, 900 19th Street NW., Suite 300, Washington, D.C. 20006
AAMA—American Architectural Manufacturers Association, 1540 East Dundee Road, Palatine, Illinois 60067
AGA—American Gas Association, 8501 East Pleasant Valley Road, Cleveland, Ohio 44131
AISI—American Iron and Steel Institute, 1000 16th Street, NW., Washington, DC 20036
AITC—American Institute of Timber Construction, 11818 SE Mill Plain Blvd., suite 415, Vancouver, Washington 98684
ANSI—American National Standards Institute, 1430 Broadway, New York, New York 10018
APA—American Plywood Association, P.O. Box 11700, Tacoma, Washington 98411
ARI—Air Conditioning and Refrigeration Institute, 1501 Wilson Blvd, 6th Floor, Arlington, Va 22209–2403
ASCE—American Society of Civil Engineers, 345 East 47th Street, New York, New York 10017–2398
ASHRAE—American Society of Heating, Refrigeration and Air Conditioning Engineers, 1791 Tulle Circle, NE., Atlanta, Georgia 30329
ASME—American Society of Mechanical Engineers, 345 East 47th Street, New York, New York 10017
ASSE—American Society of Sanitary Engineering, P.O. Box 40362, Bay Village, Ohio 44140
ASTM—American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103
CISPI—Cast Iron Soil Pipe Institute, 5959 Shallowford Road, Suite 419, Chattanooga, TN 37421
FS—Federal Specifications, General Services Administration, Specifications Branch, room 6039, GSA Building, 7th and D Streets, SW., Washington, DC 20407
HPMA—Hardwood Plywood Manufacturers Association, P.O. Box 2789, Reston, Virginia 22090
HUD–FHA—Department of Housing and Urban Development, 451 Seventh Street, SW., Washington, DC 20410
IAPMO—International Association of Plumbing and Mechanical Officials, 20001 Walnut Drive South, Walnut, CA 91784–2825
IITRI—IIT Research Institute, 10 West 35th Street, Chicago, Illinois 60616
MIL—Military Specifications and Standards, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120
NFPA—National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269
(N)EPA—National Forest Products Association, 1250 Connecticut Avenue, NW., Washington, DC 20036
NIST—National Institute of Standards and Technology, Office of Engineering Standards Technical Building, Washington, DC 20234
NPA—National Particleboard Association, 18928 Premiere Court, Gaithersburg, Maryland 20879
NSF—National Sanitation Foundation, P.O. Box 1468, Ann Arbor, Michigan 48105
NWWDA—National Wood Window and Door Association, 1400 E. Toughy Avenue, suite G–54, Des Plaines, Illinois 60018
PS—Product Standards, U.S. Government Printing Office, Washington, DC 20410
SAE—Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, Pennsylvania 15096
SJI—Steel Joist Institute, suite A, 48 Avenue North, Myrtle Beach, South Carolina 29577
TPI—Truss Plate Institute, 583 D'Onofrio Drive, suite 200, Madison, Wisconsin 53719
UL—Underwriters' Laboratories, Inc., 333 Pfingsten Road, Northbrook, Illinois 60062.

* * * * *

6. Section 3280.5 is proposed to be revised as follows:

§ 3280.5 Data plate.

Each manufactured home shall bear a data plate affixed in a permanent manner near the main electrical panel or other readily accessible and visible location. Data plates shall be made of material which will receive typed information as well as preprinted information and which can be cleared of ordinary smudges or household dirt without removing information contained thereon; or, they shall be covered in a permanent manner with materials which will make it possible to clean them of ordinary dirt and smudges without obsuring the information. Data plates shall contain not less than the following information:

(a) The name and address of the manufacturing plant in which the manufactured home was manufactured.

(b) The serial number and model designation of the unit and the date the unit was manufactured.

(c) The statement, "This manufactured home is designed to comply with the Federal manufactured home construction and safety standards in force at the time of manufacture."

(d) A list of the certification label(s) number(s) which are affixed to each transportable manufactured section under § 3280.8.

(e) A list of major factory-installed equipment including the manufacturer's

name and the mode designation of each appliance.

(f) Reference to the structural zone and wind zone for which the home is designed and duplicates of the maps as set forth in § 3280.305(c)(4). This information may be combined with the heating/cooling certificate and insulation zone maps required by §§ 3280.510 and 3280.511.

(g) The statement: "Design Approval by" followed by the name of the agency which approved the design.

* * * * *

7. The existing § 3280.8 is proposed to be amended by redesignating it to be a new § 3280.11 and by revising paragraph (c) of the new § 3280.11 to read as follows:

§ 3280.11 Certification label.

* * * * *

(c) The label shall read as follows:

As evidenced by this label No. ABC 000001, the manufacturer certifies to the best of the manufacturer's knowledge and belief that this manufactured home has been inspected in accordance with the requirements of the Department of Housing and Urban Development and is constructed in conformance with the Federal manufactured home construction and safety standards in effect on the date of manufacture. See date plate.

* * * * *

8. Part 3280, subpart A, is proposed to be amended by adding new §§ 3280.8, 3280.9, and 3280.10 to read as follows:

§ 3280.8 Waivers.

(a) Where any material piece of equipment, or system which does not meet precise requirements or specifications set out in the standard is shown, to the satisfaction of the Secretary, to meet an equivalent level of performance, the Secretary may waive the specifications set out in the Standard for that material, piece of equipment, or system.

(b) Where the Secretary is considering issuing a waiver to a Standard, the proposed waiver shall be published in the **Federal Register** for public comment, unless the Secretary, for good cause, finds that notice is impractical, unnecessary or contrary to the public interest, and incorporates into the waiver that finding and a brief statement of the reasons therefor.

(c) Each proposed and final waiver shall include:

(1) A statement of the nature of the waiver; and

(2) Identification of the particular standard affected.

(d) All waivers shall be published in the **Federal Register** and shall state their effective date. Where a waiver has been issued, the requirements of the Federal Standard to which the waiver relates may be met either by meeting the specifications set out in the Standard or by meeting the requirements of the waiver published in the **Federal Register.**

§ 3280.9 Interpretative bulletins.

Interpretative bulletins may be issued for the following purposes:

(a) To clarify the meaning of the Standard; and

(b) To assist in the enforcement of the Standard.

§ 3280.10 Use of alternative construction.

Requests for alternative construction can be made pursuant to 24 CFR 3282.14 of this chapter.

Subpart B—Planning Considerations

9. Section 3280.103 is proposed to be revised as follows:

§ 3280.103 Light and ventilation.

(a) *Lighting.* Each habitable room shall be provided with exterior windows and/or doors having a total glazed area of not less than 8 percent of the gross floor area.

(1) Kitchens, bathrooms, toilet compartments, laundry area, utility rooms and storage rooms may be provided with articifical light in place of windows.

(2) Rooms and areas may be combined for the purpose of providing the required natural lighting provided that at least one half of the common wall area is open and unobstructed, and the open area is at least equal to 10 percent of the combined floor area or 25 square feet whichever is greater.

(b) *Ventilation.* Every manufactured home shall be designed and contructed with ventilation provisions that are capable of providing a minimum of .35 air changes per hour. The following criteria is required for this purpose:

(1) A mechanical air intake system capable of providing at least 75 cubic feet per minute (cfm) that is operable independently of any other system with which it is intended to function.

(2) At least half of the glazed area required by paragraph (a) shall be openable directly to the outside of the manufactured home for unobstructable ventilation. These same ventilation requirements apply to rooms combined in accordance with § 3280.103(a)(2).

(3) Each manufactured home shall be provided with a ventilation system capable of providing a continuous exhaust of at least 50 cfm to the outside of the manufactured home. The system shall be in addition to the exhaust ventilation required for bathrooms and kitchens. The system may either be passive or mechanical. A mechanical system shall be provided with a manual control in addition to any automatic controls. It shall be operable independently of any other system with which it is intended to operate except it may operate with the intake system required in (b)(1) above.

(c) Kitchens shall be provided with a mechanical ventilation system that is capable of exhausting 100 cfm to the outside of the home. The exhaust fan shall be located as close as possible to the range or cooktop, but in no case further than 10 feet from the range or cooktop.

(d) Each bathroom and separate toilet compartment shall be provided with a mechanical ventilation system capable of exhausting 50 cfm to the outside of the home. A separate toilet comparment may be provided with 1.5 square feet of openable glazed area in place of mechanical ventilation.

(e) A room [refer to § 3280.103(a)(1)] which does not have an exterior wall shall be provided with artificial light and a mechanical ventilation system capable of exhausting 10 cfm. The system may be integral with the whole house ventilation system specified in § 3280.103(b)(3).

10. Section 3280.105 is proposed to be amended by revising paragraph (b)(2) to read as follows:

§ 3280.105 Exit facilities: exterior doors.

* * * * *

(b) * * *

(2) All exterior swinging doors shall provide a minimum 28 inch wide by 74 inch high clear opening, which may be determined by measuring the door itself. However the door stops may not reduce the clear opening to less than 27 inches wide and 73 inches high. All exterior sliding glass doors shall provide a minimum 28 inch wide 72 inch high clear opening.

* * * * *

§ 3280.109 [Removed]

11. Section 3280.109 is proposed to be removed.

§ 3280.110 [Redesignated as § 3280.109]

12. Existing § 3280.110 is proposed to be redesignated as § 3280.109.

§ 3280.111 [Redesignated as § 3280.110]

13. Existing § 3280.111 is proposed to be redesignated as § 3280.110.

§ 3280.112 [Redesignated as § 3280.111]

14. Existing § 3280.112 is proposed to be redesignated as § 3280.111.

§ 3280.113 [Redesignated as § 3280.112]

15. Existing § 3280.113 is proposed to be redesignated as new § 3280.112 and is revised to read as follows:

§ 3280.112 Hallways.

(a) Hallways shall have a minimum horizontal dimension of 28 inches measured from the interior finished surface to the interior finished surface of the opposite wall. When appliances are installed in a laundry area, the measurement shall be from the front of the appliance to the opposite finished interior surface. When appliances are not installed and a laundry area is provided, the area shall have a minimum clear depth of 27 inches in addition to the 28 inches required for passage. In addition, a notice of the available clearance for washer/dryer units shall be posted in the laundry area. Minor protrusions into the minimum hallway width by doorknobs, trim, smoke detectors or light fixtures are permitted.

(b) An interior door placed in a hallway or any path necessary to reach an exterior door (not including any access door to the hallway from any other space) shall have a minimum clear width opening of 27 inches for egress.

§ 3280.114 [Redesignated as § 3280.113]

16. Existing § 3280.114 is proposed to be redesignated as § 3280.113.

Subpart C—Fire Safety

17. Section 3280.202 is proposed to be revised as follows:

§ 3280.202 Definitions.

The following definitions are applicable to subparts C, H, and I of the Standards:

Combustible material: Any material not meeting the definition of limited-combusitble or non-combustible material.

Flame-spread rating: The measurement of the propagation of flame on the surface of materials or their assemblies as determined by recognized standard tests conducted as required by this subpart.

Interior finish: The surface material of walls, fixed or movable partitions, ceilings, columns, and other exposed interior surfaces affixed to the home's structure including any materials such as paint or wallpaper and the substrate to which they are applied. Interior finish does not include:

(1) Trim and sealant 2 inches or less in width adjacent to the cooking range and in furnace and water heater spaces provided if it is installed in accordance with the requirements of § 3280.203(b)(3) or (4), and trim 6 inches or less in width in all other areas;

(2) Windows and frames;

(3) Single doors and frames and a series of doors and frames not exceeding 5 feet in width;

(4) Skylights and frames;

(5) Casings around doors, windows, and skylights not exceeding 4 inches in width;

(6) Furnishings which are not permanently affixed to the home's structure;

(7) Baseboards not exceeding 6 inches in height;

(8) Light fixtures, cover plates of electrical receptacle outlets, switches, and other devices;

(9) Decorative items attached to walls and partitions (i.e., pictures, decorative objects, etc.) constituting no more than 10% of the aggregate wall surface area in any room or space not more than 32 square feet in surface area, whichever is less;

(10) Plastic light diffusers when suspended from a material which meets the interior finish provisions of § 3280.203(b);

(11) Coverings and surfaces of exposed wood beams; and

(12) Decorative items including the following:

(i) Non-structural beams not exceeding 6 inches in depth and 6 inches in width and spaced not closer than 4 feet on center;

(ii) Non-structural lattice work;

(iii) Mating and closure molding; and

(iv) Other items not affixed to the home's structure.

Limited combustible: A material meeting:

(1) The definition of Article 2–3 or NFPA 220–1985; or

(2) 5/16-inch or thicker gypsum board.

Noncombustible material: A material meeting the definition of Article 2–6 of NFPA 220–1985.

Single-station alarm device: An assembly incorporating the smoke detector sensor, the electrical control equipment, and the alarm-sounding device in one unit.

Smoke detector: A wall-mounted detector of the ionization chamber or photoelectric type which detects visible or invisible particles of combustion and operates from a 120 V AC source of current.

18. Section 3280.203 is amended by revising paragraphs (a) and (b)(4) to read as follows:

§ 3280.203 Flame spread limitations and fire protection requirements.

(a) Establishment of flame spread rating. The surface flame spread rating of interior-finish material shall not exceed the value shown in § 3280.203(b) when tested by "Standard Test Method for Surface Burning Characteristics of Building Materials, ASTM E 84–89a" except that the surface flame spread rating of interior-finish materials required by § 3280.203(b) (5) and (6) may be determined by using the "Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source, ASTM E 162–87". However, the following materials need not be tested to establish their flame spread rating unless a lower rating is required by these standards.

(1) Flame-spread rating—76 to 200.

(i) .035-inch or thicker high pressure laminated plastic panel countertop;

(ii) ¼-inch or thicker unfinished plywood with phenolic or urea glue;

(iii) Unfinished dimension lumber (1-inch or thicker nominal boards);

(iv) ⅜-inch or thicker unfinished particleboard with phenolic or urea binder;

(v) Natural gum-varnished or laxtex- or alkyd-painted:

(*a*) ¼-inch or thicker plywood, or

(*b*) ⅜-inch or thicker particleboard, or

(*c*) 1-inch or thicker nominal board;

(vi) 5/16-inch gypsum board with decorative wallpaper; and

(vii) ¼-inch or thicker unfinished hardboard,

(2) Flame-spread rating—25 to 200,

(i) Painted metal;

(ii) Mineral-base acoustic tile;

(iii) 5/16-inch or thicker unfinished gypsum wallboard (both laxtexs- or alkyd-painted); and

(iv) Ceramic tile.

(The above-listed material applications do not waive the requirements of §§ 3280.203(c) or 3280.204 of this subpart.)

(b) * * *

(4) Exposed interior finishes adjacent to the cooking range shall have a flame spread rating not exceeding 50, except that backsplashes not exceeding 6 inches in height are exempted. Adjacent surfaces are the exposed vertical surfaces between the range top height and the overhead cabinets and/or ceiling and within 6 horizontal inches of the cooking range. (Refer also to § 3280.204(a), "Kitchen Cabinet Protection.") Sealants and other trim materials 2 inches or less in width used to finish adjacent surfaces are exempt from this provision provided that all joints are completely supported by a framing member.

* * * * *

19. Section 3280.208 is amended by revising paragraphs (c) and (d) to read as follows:

§ 3280.208 Fire detection equipment.

* * * * *

(c) *Labeling.* Smoke detectors shall be labeled as conforming with the requirements of Underwriters' Laboratories Standard No. 217—Third Edition 1985, as amended through 1989, for "Single and Multiple Station Smoke Detectors."

(d) *Installation.* Each smoke detector shall be installed in accordance with its listing. The top of the detector shall be located on a wall 4 inches to 12 inches, or at a distance permitted by the listing, below the ceiling. However, when a detector is mounted on an interior wall below a sloping ceiling, it shall be located 4 inches to 12 inches below the intersection of the connecting exterior wall and the sloping ceiling (cathedral ceiling). The required detector(s) shall be attached to an electrical outlet box and the detector connected by a permanent wiring method into a general electrical circuit. There shall be no switches in the circuit to the detector between the over-current protection device protecting the branch circuit and the detector. Smoke detector(s) shall not be placed on the same branch circuit or any circuit protected by a ground fault circuit interrupter.

Subpart D—Body and Frame Construction Requirements

20. Section 3280.302 is proposed to revised to read as follows:

§ 3280.302 Definitions.

The following definitions are applicable to Subpart D only:

Anchoring equipment means straps, cables, turnbuckles, and chains, including tensioning devices, which are used with ties to secure a manufactured home to ground anchors.

Anchoring system means a combination of ties, anchoring equipment, and ground anchors that will, when properly designed and installed, resist overturning and lateral movement of the manufactured home from wind forces.

Diagonal tie means a tie intended to primarily resist horizontal forces, but which may also be used to resist vertical forces.

Footing means that portion of the support system that transmits loads directly to the soil.

Ground anchor means any device at the manufactured home stand designed to transfer manufactured home anchoring loads to the ground.

Hurricane resistive manufactured home means a manufactured home which meets the wind design load requirements for Zone II in § 3280.305(c)(2).

Loads. (1) *Dead loads* means the weight of all permanent construction including walls, floors, roof, partition, and fixed service equipment.

(2) *Live load* means the weight superimposed by the use and occupancy of the manufactured home, including wind load and snow load, but no including dead load.

(3) *Wind load* means the lateral or vertical pressure or uplift on the manufactured home due to wind blowing in any direction.

Main frame means the structural component on which is mounted the body of the manufactured home.

Pier means that portion of the support system between the footing and manufactured home exclusive of caps and shims.

Sheathing means material which is applied on the exterior side of a building frame under the exterior weather resistant covering.

Stabilizing devices means all components of the anchoring and support system such as piers, footings, ties, anchoring equipment, ground anchors, and any other equipment which supports the manufactured home and secures it to the ground.

Support system means a combination of footings, piers, caps, and shims that will, when properly installed, support the manufactured home.

Tie means straps, cable, or securing devices used to connect the manufactured home to ground anchors.

Vertical tie means a tie intended to resist the uplifting or overturning forces.

21. Section 3280.303 is proposed to be amended by revising paragraph (g) to read as follows:

§ 3280.303 General requirements.

* * * * *

(g) *Alternative test procedures.* In the absence of recognized testing procedures either in these standards or the applicable provisions of those standards incorporated by reference, the manufacturer electing this option shall develop or cause to be developed testing procedures to demonstrate the structural properties and significant characteristics of the material, assembly, subassembly component or member. Such testing procedures shall become part of the manufacturer's approved design. (Refer to § 3280.3)

(1) Testing procedures so developed shall be submitted to the Department for approval.

(2) Upon notification of approval, the alternative test procedure is considered acceptable.

(3) Such tests shall be witnessed by an independent licensed professional engineer or architect or by a recognized testing organization. Copies of the test results shall be kept on file by the manufactured home manufacturer.

22. Section 3280.304 is proposed to be amended by revising paragraph (b)(1) to read as follows:

§ 3280.304 Materials.

* * * * *

(b)(1) Standards for some of the generally used materials and methods of construction are listed in the following table.

Aluminum Construction Manual, Sec. 1, Specifications for Aluminium Structures	AA–1986.
Steel:	
Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings. The following parts of this reference standard are not applicable: 1.3.3, 1.3.4, 1.3.5, 1.3.6, 1.4.6, 1.5.1.5, 1.5.5, 1.6, 1.7, 1.8, 1.9, 1.10.4 through 1.10.7 1 10.9, 1 11, 1.13, 1.14.5, 1.17.7 through 1.17.9, 1.19.1, 1.19.3, 1.20, 1.21, 1.23.7, 1.24, 1.25.1 through 1.25.5, 1.26.4, 2.3, 2.4, 2.8 through 2.10.	AISC S335–1989.
The Specification for the Design of Cold-Formed Steel Structural Members. The following parts of this reference standard are not applicable: 3.1.2, 4.2.1., 4.2.4.	AISI–1986 with 1989 addendum.
Stainless Steel Cold-Formed Structural Design Manual, Part I, Structural Members: Specifications for the Design of Light Gage Cold-Formed Stainless Steel Structural Members, except 3.1.2..	AISI–1974.
Standard Specifications Load tables and Weight Tables for Steel Joists and Joist Girders, only Sections 1–6 and the table for "H series only" are applicable.	SJI–1988.
Manual for Structural Applications of Steel Cables for Buildings.	AISI–1973.
Strapping, Steel, and Seals, with Notice #1 and Amendment #2, only type 1, Finish B, Grade 1 of plating/coating sections are applicable..	FS QQ–S–781H–1974 with 1977 Amendment 2 & Notice 1.
Wood and Wood Products:	
Basic Hardboard	ANSI/AHA A135.4–1982.
Prefinished Hardboard Paneling	ANSI/AHA A135.5–1988.

Hardboard Siding	ANSI/AHA A135.6–1989.
Hardwood and Decorative Plywood	ANSI/HPMA–HP–1983.
Structural Design Guide for Hardwood Plywood Wall Panels	HPMA–HP–SG–1986.
Structural Glued Laminated Timber	ANSI/AITC A190.1–1983.
Construction and Industrial Plywood	PS–1–83.
APA Design/Construction Guide, Residential and Commerical	APA–E–30.
Design and Fabrication of All–Plywood Beams, Suppl. 5	APA–H–815.
Plywood Design Specification	APA–Y–510.
Design and Fabrication of Plywood Lumber Beams, Suppl. 2	APA–S–812.
Design and Fabrication of Plywood Curved Panels, Suppl. 1	APA–S–811
Design and Fabrication of Plywood Sandwich Panels, Suppl. 4	APA–U–814.
Design and Fabrication of Plywood Stressed Skin Panels, Suppl. 3	APA–U–813.
National Design Specification for Wood Construction with Supplement Design Value for Wood Construction.	(N)FPA–1986 with 1988 Supplement.
Wood Structural Design Date	(N)FPA–1988.
Span Tables for Joists and Rafters (PS 20–70)	(N)FPA–1986.
Design Values for Joists and Rafters	(N)FPA–1986.
Design Specifications for Metal Plate Connected Wood Trusses	TPI–1985.
Mat–formed Wood Particleboard	ANSI A208.1–1984.
Wood Flush Doors	ANSI/NWWDA I.S. 1–1987
Wood Window Units	ANSI/NWWDA I.S. 2–1987
Wood Sliding Patio Doors	ANSI/NWWDA I.S.3–1988.
Water Repellant Preservative Non-Pressure Treatment for Millwork	NWWDA I.S. 4–81.
Standard Test Methods for Puncture and Stiffness of Paperboard, and Corrugated and Solid Fiberboard. Exception, the puncture resistance inch-pound value provided in Section 3280.306 shall be used.	ASTM D 781–68(73).
Standard Test Methods for Moisture Content of Wood, only Test Method B is applicable.	ASTM D–2016–74(83). ASTM D 2016–74(83).
Other:	
Standard Specification for Gypsum Wallboard	ASTM C 36–1988.
Fasteners:	
Nails, Brads, Staples and Spikes, Wire, Cut and Wrought, except packing and shipping provisions.	FS FF–N–105B–1971 with 1977 Amendment 4.
Application and Fastening Schedule: Power-Driven Mechanically Driven and Manually Driven Fasteners.	HUD–FHA Use of Materials Bulletin UM–25D–73.
Unclassified:	
American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures	ASCE 7–88.
APA Performance Standards and Policies for Structural Use Panels	APA PRP E–445.
Windows and Glazing:	
Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Building.	ANSI Z97.1–1984.

* * * * *

23. Section 3280.305 is proposed to be amended by redesignating paragraphs (g) (3) and (4) as (g) (4) and (5), respectively; by adding new paragraphs (b)(4) and (g)(3); and by revising paragraphs (d), (f)(2), (g)(2), and (i)(1)(i) to read as follows:

§ 3280.305 Structural design requirements.

* * * * *

(b) * * *

(4) Whenever the roof slope does not exceed 20, the design horizontal wind load required by § 3280.305(c) (1) and (2) may be determined without including the vertical roof projection of the manufactured home. However, regardless of the roof slope of the mobile home, the vertical roof projection shall be included when determining the wind loading for split level or clerestory type roof systems.

* * * * *

(d) *Design load deflection.* (1) When a structural assembly is subjected to total design live loads, the deflection for structural framing members shall not exceed the following:

Floor	L/240
Roof and ceiling	L/180
Headers, beams, and girders (vertical load)	L/180
Walls and partitions	L/180

Where L equals the clear span between supports or two times the length of a cantilever.

(2) The allowable eave on cornice deflection for uplift is to be measured at the design uplift load. [9 psf or 15 psf x by 2.5]. The allowable deflection shall be (2 x Lc)/180 when Lc is the measured horizontal eave projection from the wall.

* * * * *

(f) * * *

(2) Interior walls and partitions shall be constructed with structural capacity adequate for the intended purpose and shall be capable of resisting a horizontal load of not less than five pounds per square foot. An allowable stress measure of 1.33 times the permitted published design values may be used in the design of wood framed interior partitions. Finish of walls and partitions shall be securely fastened to wall framing.

(g) * * *

(2) Wood, wood fiber or plywood floors or subfloors in kitchens, bathrooms (including toilet compartments), laundry *areas*, water heater compartments, and any other areas subject to excessive moisture shall be moisture resistant or shall be made moisture resistant by sealing or by an overlay of nonabsorbent material applied with water-resistant adhesive. *Use one of the following methods:*

(i) Sealing the floor with a water-resistant sealer; or

(ii) Installing an overlay of a nonabsorbent floor covering material applied with water-resistant adhesive; or

(iii) Direct application of a water-resistant sealer to the exposed wood floor area when covered with a nonabsorbent overlay; or

(iv) The use of a nonabsorbent floor covering which may be installed without

a continuous application of a water-resistant adhesive or sealant when the floor covering meets the following criteria:

(A) The covering is a continuous membrane with any seams or patches seam bonded or welded to preserve the continuity of the floor covering; and,

(B) The floor is protected at all penetrations in these areas by sealing with a compatible water-resistant adhesive or sealant to prevent moisture from migrating under the nonabsorbent floor covering; and,

(C) The covering is fastened around the perimeter of the subfloor in accordance with the floor covering manufacturer's instructions; and,

(D) The covering is designed to be installed to prevent moisture penetration without the use of a water-resistant adhesive or sealer except as required above.

The vertical edges of penetrations for plumbing shall be covered with a moisture-resistant adhesive or sealant. The vertical penetrations located under the bottom plates of perimeter walls of rooms, areas, or compartments are not required to be sealed; this does not include walls or partitions within the room or areas.

(3) Carpet or carpet pads shall not be installed under concealed spaces subject to excessive moisture, such as plumbing fixture spaces, floor areas under installed laundry equipment. Carpet may be installed in laundry space provided:

(i) The appliances are not provided;

(ii) The conditions of paragraph (g)(2) of this section are followed; and

(iii) Instructions are provided to remove carpet when appliances are installed.

* * * * *

(i) * * *

(1) *Welded connections.* (i) All welds shall be made in accordance with the applicable provisions of the Specification for the Design, Fabrication, and Erection of Structural Steel For Buildings, AISC–S335–1989. The Specification for the Design of Cold-Formed Steel Structural Members, AISI–1986 with 1989 addendum, and the Stainless Steel Cold-Formed Structural Design Manual, AISI–1974.

* * * * *

24. Section 3280.306 is proposed to be amended by revising the introductory paragraph (a) to read as follows:

§ 3280.306 Windstorm protection.

(a) *Provisions for support and anchoring systems.* Each manufactured home shall have provisions for support and anchoring systems, which, when properly designed and installed, will resist overturning and lateral movement (sliding) of the manufactured home as imposed by the respective design loads. The design wind loads to be utilized for calculating resistance to overturning and lateral movement shall be the wind loads indicated in § 3280.305(c) (1) and (2) increased by a factor of safety of 1.5. The basic allowable stresses of materials required to resist overturning and lateral movement shall not be increased in the design and proportioning of these members. The 1.5 factor of safety is to be applied to the design wind load is only to be utilized in the design of the tie-down system to resist overturning and lateral movement, and is not to be applied to the design of the home structure. Wind loading effects for purpose of this section shall be 1.5 x horizontal wind load (15 PSF, 25 PSF) and roof uplift (9 PSF, 15 PSF). When determining the effects of wind overturning and sliding to evaluate the tie-down system, the 1.5 factor of safety is to be applied simultaneously to both the vertical building projection as horizontal wind load and across the surface of the full roof structure as uplift loading. No additional shape or location factors need be applied in the design of the tie-down system. The dead load of the structure may be used to resist the above wind loading effects.

* * * * *

25. Section 3280.309 is proposed to be amended by revising paragraph (b) to read as follows:

§ 3280.309 Health Notice on formaldehyde emissions.

* * * * *

(b) The Notice shall be legible and typed using letters at least ¼ inch in size. The title shall be typed using letters at least ¾ inch in size.

* * * * *

Subpart E—Testing

26. Section 3280.401 is proposed to be amended by revising paragraph (b) to read as follows:

§ 3280.401 Structural load tests.

* * * * *

(b) *Ultimate load tests.* Ultimate load tests shall be performed on a minimum of three assemblies or components to generally evaluate the structural design. Every structural assembly or component tested shall be capable of sustaining its total dead load plus the design live load increased by a factor of safety of at least 2.5. A factor of safety greater than 2.5 shall be used when required by an applicable reference standard in § 3280.304(b)(1). Tests shall be conducted with loads applied and deflections recorded in ¼ design live load increments at 10-minute intervals until 1.25 times design live load plus dead load has been reached. Additional loading shall then be applied continuously until failure occurs or the total of the factor of safety times the design live load plus the dead loan is reached. Assembly failure shall be considered as design live load deflection greater than the limits set in § 3208.305(d) rupture, fracture, or excessive yielding. Assemblies to be tested shall be representative of average quality or materials and workmanship of the production. Each test assembly, component, or sub-assembly shall be identified as to type and quality or grade of material. All assemblies, components, or sub-assemblies qualifying under this section shall be subject to a periodic qualification testing program acceptable to the Department.

26. In § 3280.402, in paragraph (c)(1)(i), Figure A–1 is proposed to be revised as follows:

§ 3280.402 Test procedure for roof trusses.

* * * * *

(c) * * *

(1) * * *

(i) * * *

[Insert Figure A–1.]

* * * * *

27. Section 3280.403 is proposed to be amended by revising paragraphs (d)(2) and (e)(1) to read as follows:

§ 3280.403 Standard for windows and sliding glass doors used in manufactured homes.

* * * * *

(d) * * *

(2) Sealed insulating glass, where used, shall meet all performance requirements for Class C in accordance with ASTM E–774–88, Standard Specification for Sealed Insulating Glass Units. The sealing system shall be qualified in accordance with ASTM E–773–88 Standard Test Method for Seal Durability of Sealed Insulating Glass Units. Each glass unit shall be permanently identified with the name of the insulating glass manufacturer.

(e) * * *

(1) All such windows and doors shall show evidence of certification by affixing a quality certification label to the product in accordance with ANSI Z34.1–1987, "For Certification-Third Party Certification Program."

* * * * *

28. Section 3280.405 is proposed to be amended by revising paragraphs (c) (1) and (2) to read as follows:

§ 3280.405 Standard for swinging exterior passage doors for use in manufactured homes.

* * * * *

(c) * * *

(1) *Wood.* Doors shall conform to the type 1 requirements of "ANSI/NWWDA I.S.1–87, Wood Flush Doors."

(2) *Plywood.* Plywood shall be exterior type and preservative treated in accordance with "NWWDA I.S.4–81, Water Repellent Preservative Non-Pressure Treatment for Millwork."

* * * * *

29. Section 3280.406 is proposed to be amended by revising the introductory test of paragraph (b) to read as follows:

§ 3280.406 Air chamber test method for certification and qualification of formaldehyde emission levels.

* * * * *

(b) *Testing.* Testing shall be conducted in accordance with the Standard Test Method for Determining Formaldehyde Levels from Wood Products Under Defined Test Conditions Using a Large Chamber, ASTM E–1333–90, with the following exceptions:

* * * * *

Subpart F—Thermal Protection

30. Section 3280.504 is proposed to be amended by revising the section heading; by revising paragraph (a); by redesignating the existing paragraph (b) to be paragraph (c); and by adding a new paragraph (b) to read as follows:

§ 3280.504 Condensation control and installation of vapor retarders.

(a) *Ceiling vapor retarders.* Ceilings shall have a vapor retarder with a permance of not greater than 1 perm (dry cup method) installed on the living space side of the roof cavity. An exception is the vapor retarder may be omitted provided the manufactured home is constructed for condensation Zone II, (refer to Figure 504) and the minimum free ventilation area of the attic or roof cavity is not less than $\frac{1}{150}$ of the attic or roof cavity floor area.

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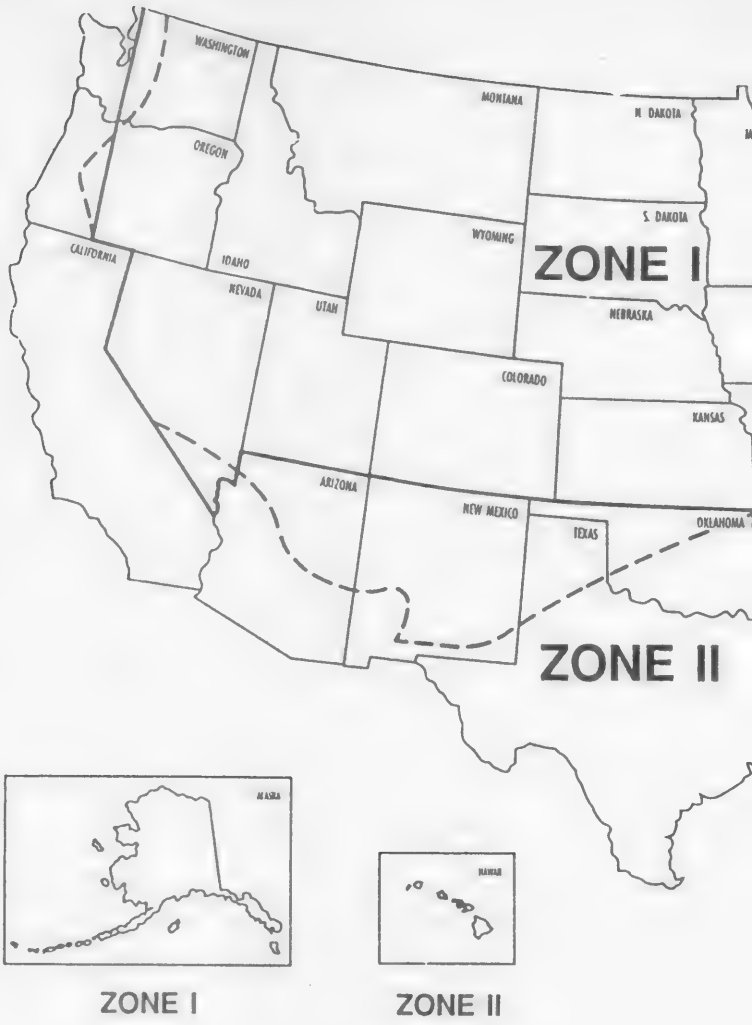

ZONE I ZONE II

Figure 504. Condensation

BILLING CODE 4210-27-C

ation Map of the United States

(b) *Attic or roof ventilation.* (1) Attic and roof cavities shall be provided with:

(i) A minimum free ventilation area of not less than 1/300 of the attic or roof cavity floor area; or

(ii) A mechanical attic or roof ventilation system may be installed instead of providing the free ventilation area when the mechanical system provides a minimum air change rate of 0.7 cubic feet per minute (cfm) per sq. ft. of attic floor area (at 0.03 inch static pressure) or 10 air changes per hour, whichever is less. The air intake shall provide at least 1 square foot free opening per 300 cfm fan capacity. Intake and exhaust vents shall be located so as to provide air movement throughout space.

(2) Single section manufactured homes constructed with metal roofs and having no sheathing or underlayment installed, are not required to be provided with attic or roof ventilation provided that:

(i) The vapor retarder specified in § 3280.504(a) is installed and air leakage paths from the living space to the roof cavity created by electrical outlets, plumbing penetrations, flue pipes and exhaust vents are sealed.

(ii) Capability to provide continuous mechanical ventilation from the exterior to the interior, and from the interior to the exterior, of the home is installed. The minimum ventilation rate shall be 150 cfm. This system shall be considered as complying with § 3280.103(b) (1) and (3). The ventilation provided shall be switch controlled and shall be provided with an automatic humidity control system.

(3) Between 50 and 60 percent of the required free ventilation area shall be provided by ventilators located in the upper portion of the space to be ventilated, with the balance provided by eave, soffit or low gable vents. The location and spacing of the vent openings and ventilators shall provide cross-ventilation to the entire attic or roof cavity space. A clear air passage space having a minimum height of 1 inch shall be provided between the top of the insulation and the roof sheathing or roof covering.

(4) To determine the appropriate condensation zone, refer to Figure 504. Either the state lines (solid lines) or the design temperature lines (if exact location of home is known) shall be utilized.

(5) The vents provided for ventilating attics shall be designed to prevent entry of rain, snow and insects.

* * * * *

31. Section 3280.506 is proposed to be revised to read as follows:

§ 3280.506 Heat loss/Heat gain.

The manufactured home heat loss/heat gain shall be determined by methods outlined in §§ 3280.508 and 3280.509. The Uo (Coefficient of heat transmission) value zone for which the manufactured home is acceptable and the lowest outdoor temperature to which the installed heating equipment will maintain a temperature of 70° F shall be certified as specified in § 3280.510 of this subpart. The Uo value zone shall be determined from the map in Figure 506.

BILLING CODE 4210-27-M

Figure 504. Condensatio

Zone[a]	U-value
1	0.132
2	0.109
3	0.096
4	0 079

[a]Hawaii is included in Zone 1
Alaska is included in Zone 4

BILLING CODE 4210-27-C

Figure 506. U

ation Map of the United States

6. U-value Zones

(a) Coefficient of heat transmission. The overall coefficient of heat transmission (Uo) of the manufactured home for the respective zones and an indoor design temperature of 70° F, including internal and external ducts, and excluding infiltration ventilation and condensation control, shall not exceed the Btu/(hr.) (sq. ft.) (F) of the manufactured home envelope are as tabulated below:

Uo value zone	Maximum coefficient of heat transmission
1	0.132 Btu/(hr.) (sq. ft.) (F)
2	0.109 Btu/(hr.) (sq. ft.) (F)
3	0.096 Btu/(hr.) (sq. ft.) (F)
4	0.079 Btu/(hr.) (sq. ft.) (F)

(b) To assure uniform heat transmission in manufactured homes, cavities in exterior walls, floors, and ceilings shall be provided with thermal insulation.

(c) Manufactured homes designed for Uo Value Zone 4 shall be factory equipped with storm windows or insulating glass.

32. Section 3280.508 is proposed to be revised to read as follows:

§ 3280.508 Heat loss, heat gain and cooling load calculations.

(a) Information, values and data necessary for heat loss and heat gain determinations shall be taken from the 1989 ASHRAE Handbook of Fundamentals, Chapters 20 through 27. The following portions of those chapters are not applicable:

21.1 Steel Frame Construction
21.2 Masonry Construction
21.3 Floor Systems
21.14 Pipes
21.16 Tanks, Vessels and Equipment
21.17 Refrigerated Rooms and Buildings
22.15 Mechanical and Industrial Systems
23.13 Commercial Building Envelope Leakage
25.4 Calculation of Heat Loss from Crawl Spaces

(b) The calculation of the manufactured home's transmission heat loss coefficient (Uo) shall as a minimum address all the heat loss or heat gain considerations in a manner consistent with the calculation procedures provided in appendix A of this part.

(c) Areas where the insulation does not fully cover a surface or is compressed shall be accounted for in the U-calculation (see § 3280.506). The effect of framing on the U-value must be included in the Uo calculation. Other low-R-value heat-flow paths ("thermal shorts") shall be explicitly accounted for in the calculation of the transmission heat loss coefficient if in the aggregate all types of low-R-value paths amount to more than 1% of the total exterior surface area. Areas are considered low-R-value heat-flow paths if:

(1) They separate conditioned and unconditioned space; and

(2) They are not insulated to a level that is at least one-half the nominal insulation level of the surrounding building component.

(d) High Efficiency Heating and Cooling Equipment Credit. The calculated transmission heat loss coefficient (Uo) used for meeting the requirement in § 3280.506(a) may be adjusted for heating and cooling equipment efficiency above that required by the National Appliance Energy Conservation Act of 1987 (NAECA) by applying the following formula:

Uo adjusted = Uo standard × [1 + (0.6) (heating efficiency increase factor) + (cooling multiplier) (cooling efficiency increase factor)] where

"Uo standard" = maximum Uo for that zone.

"Uo adjusted" = maximum Uo adjusted for high efficiency HVAC equipment

"heating efficiency increase factor" = the increase factor in the heating equipment efficiency in AFUE (or HSPF for heat pumps) above that required by NAECA and = (AFUE home—AFUE NAECA)/AFUE NAECA

"cooling efficiency increase factor" = the increase factor in the cooling equipment efficiency in SEER above that required by NAECA and = (SEER home—SEER NAECA)/SEER NAECA

"cooling multiplier" = the cooling multiplier for the Uo zone from the table below.

Uo zone	Cooling multiplier (Cm)
1	0.60
2	0.20
3	0.07
4	0.03

(e) U-values for any glazing (windows, skylights, and the glazed portions of any door) shall be based on tests using American Architectural Manufacturers Association (AAMA) 1503.1–1988, Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections. In the absence of tests, the following default values must be used, with storm windows treated as an additional pane:

- 1.31 for single-pane glazing.
- 0.92 for double-pane glazing.
- 0.79 for triple-pane glazing.
- 1.23 for single-pane sliding glass doors (slider).
- 0.78 for double-pane sliding glass doors.
- 0.64 for triple-pane sliding glass doors.
- 0.60 for the unglazed portion of a door.

(f) Annual Energy Used Based Compliance. As an alternative, homes may demonstrate compliance with the annual energy used implicit in the coefficient of heat transmission (Uo) requirement. The annual energy use determination must be based on generally accepted engineering practices. The general requirement is to demonstrate that the home seeking compliance approval has a projected annual energy use, including both heating and cooling, less than or equal to a similar "base case" home that meets the standard. The energy use for both homes must be calculated based on the same assumptions; including assuming the same dimensions for all boundaries between conditioned and unconditioned spaces, site characteristics, usage patterns and climate.

33. Section 3280.510 is proposed to be amended by revising paragraph (b) to read as follows:

§ 3280.510 Heat loss certificate.

* * * * *

(b) *Outdoor certification temperature.* The lowest outdoor temperature at which the installed heating equipment will maintain a 70° F temperature inside the home without storm sash or insulating glass for Zone 1, 2, and 3 and with storm sash or insulating glass for Zone 4 and complying with §§ 3280.508 and 3280.509.

Heating Certificate

Home Manufacturer _____
Plant Location _____
Home Model _____
(Include U Value Zone Map)
This manufactured home has been thermally insulated to conform with the requirements of the Federal Manufactured Home Construction and Safety Standards for all locations within U Value Zone ____.
Heating Equipment Manufacturer _____
Heating Equipment Model _____
The above heating equipment has the capacity to maintain an average 70 °F temperature in this home at outdoor temperatures of ____ °F.
To maximize furnace operating economy and to conserve energy, it is recommended that this home be installed where the outdoor winter design temperature (97½%) is not higher than ____ degrees Fahrenheit.

The above information has been calculated assuming a maximum *wind velocity* of 15 MPH at standard atmospheric pressure.

34. Section 3280.511 is proposed to be amended by revising paragraphs (a)(1), (b), and (c) to read as follows:

§ 3280.511 Comfort cooling certificate and information.

(a) * * *

(1) [1]*Alternative I.* If a central air conditioning system is provided by the home manufacturer, the heat gain calculation necessary to properly size the air conditioning equipment shall be in accordance with procedures outlined in Chapter 22 of the 1989 ASHRAE Handbook of Fundamentals, with an assumed location and orientation. The following shall be supplied in the Comfort Cooling Certificate:
Air Conditioner Manufacturer

_____

Air Conditioner Model _____
Certified Capacity ____ BTU/Hr. in accordance with the appropriate Air Conditioning and Refrigeration Institute Standards

The temperature to be specified shall be 20° or 30% of the design temperature difference, whichever is greater, added to the temperature specified as the heating system capacity certification temperature without storm windows or insulating glass for Zones 1, 2, and 3 and with storm windows or insulating glass for Zone 4. Design temperature difference is 70° minus the heating system capacity certification temperature in degrees Fahrenheit.

The central air conditioning system provided with this home has been sized, assuming an orientation of the front (hitch) end of the home facing _____ and is designed on the basis of a 75° F indoor temperature and an outdoor temperature of ____ F dry bulb and ____ F wet bulb."

Example Alternate I

Comfort Cooling Certificate

Manufactured Hme Mfg _____
Plant Location _____
Manufactured Home Model

_____

Air Conditioner Manufacturer

_____

Certified Capacity ____ BTU/Hr. in accordance with the appropriate Air Conditioning and Refrigeration Institute Standards.

The central air conditioning system provided with this home has been sized assuming an orientation of the front (hitch end) of the home facing _____. On this basis, the system is designed to maintain an indoor temperature of 75° F when outdoor temperatures are ____ F dry bulb and ____ F wet bulb.

The temperature to which this home can be cooled will change depending upon the amount of exposure of the windows to the sun's radiant heat. Therefore, the home's heat gains will vary dependent upon its orientation to the sun and any permanent shading provided. Information concerning the calculation of cooling loads at various locations, window exposures and shadings are provided in chapter 22 of the 1989 edition of the ASHRAE Handbook of Fundamentals.

* * * * *

(b) For each home designated as suitable for central air conditioning the manufacturer shall provide the maximum central manufactured home air conditioning capacity certified in accordance with the ARI Standard 210/240 Unitary Air Conditioning and Air Source Unitary Heat Pump Equipment and in accordance with § 3280.715(a)(3). If the capacity information provided is based on entances to the air supply duct at other than the furnace plenum, the manufacturer shall indicate the correct supply air entrance and return air exit locations.

(c) *Comfort cooling information.* For each manufactured home designated, either "suitable for" or "provided with" a central air conditioning system, the manufacturer shall provide comfort cooling information specific to the manufactured home necessary to complete the cooling load calculations. The comfort cooling information shall include a statement to read as follows:

To determine the required capacity of equipment to cool a home efficiently and economically, a cooling load (heat grain) calculation is required. The cooling load is dependent on the orientation, location and the structure of the home. Central air conditioners operate most efficiently and provide the greatest comfort when their capacity closely approximates the calculated cooling load. Each home's air conditioner should be sized in accordance with chapter 22 of the 1989 Edition, American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Handbook of Fundamentals, once the location and orientation are known.

Information Provided by the Manufacturer Necessary to Calculate Sensible Heat Gain

Walls (without windows and doors)..... "U"
Ceilings and roofs of light color..... "U"
Ceilings and roofs of dark color..... "U"
Floors..... "U"
Air ducts in floor..... "U"
Air ducts in ceiling..... "U"
Air ducts installed outside the home..... "U"

Information necessary to calculate duct areas.

Subpart G—Plumbing Systems

35. Section 3280.602 is proposed to be amended by removing the pragraph designations from the section and by adding in alphabetical order the definitions for "Flushometer tank", "Plumbing appliance", "Plumbing appurtenance" and "Whirlpool bathtub", to read as follows:

§ 3280.602 Definitions.

* * * * * * *

Flushometer tank means a device integrated within an air accumulator vessel which is designed to discharge a predetermined quantity of water to fixtures for flusing purposes.

* * * * *

Plumbing appliance means any one of a special class of plumbing fixture which is intended to perform a special plumbing function. Its operation and/or control may be dependent upon one or more energized components, such as motors, control, heating elements, or pressure or temperature-sensing elements. Such fixture may operate automatically through one or more of the following actions: A time cycle, a temperature range, a pressure range, a measured volume or weight, or the fixture may be manually adjusted or controlled by the user or operator.

Plumbing appurtenance means a manufactured device, or a prefabricated assembly, or an on-the-job assembly of component parts, and which is an adjunct to the basis piping system and plumbing system and plumbing fixtures. An appurtenance demands no additional water supply, nor does it add any discharge load to a fixture or the drainage system.

* * * * * * *

Whirlpool bathtub means a plumbing appliance consisting of a bathtub fixture which is equipped and fitted with a circulation piping system, pump, and other appurtenances and is so designed to accept, circulate, and discharge bathtub water upon each use. (See also definition of "Hydromassage Bathtub" in Article 680 of the National Electrical Code, NFPA No 70–, 1990.

[1] The temperature to be specified shall be 20 F or 30% of the design temperature difference, whichever is greater, added to the temperature specified as the heating system capacity certification temperature without storm windows or insulating glass for Zones 1, 2, and 3 and with storm windows or insulating glass for Zone 4. Design temperature difference is 70 minus the heating system capacity certification temperature in degrees Fahrenheit.

36. Section 3280.603 is proposed to be amended by revising paragraph (a)(5) to read as follows:

§ 3280.603 General requirements.

(a) * * *

(5) *Components.* Plumbing materials, devices, fixtures, fittings, equipment, appliances, appurtenance, and accessories intended for use in or attached to a manufactured home shall conform to one of the applicable standards referenced in § 3280.604. Where an applicable standard is not referenced, the plumbing component shall be listed by a nationally recognized testing laboratory, inspection agency other qualified organization as suitable for the intended use.

* * * * *

37. Section 3280.604 is proposed to be revised as follows:

§ 3280.604 Materials.

(a) Minimum standards. Materials, devices, fixtures, fittings, equipment, appliances, appurtenances and accessories shall conform to one of the standards in the following table and be free from defects. Where an appropriate standard is not indicated in the table or a standard not indicated in the table is preferred, the item may be used if it is listed. A listing is also required when so specified in other sections of this subpart.

(b) Where more than one standard is referenced for a particular material or component, compliance with only one of those standards is acceptable. Exceptions:

(1) When one of the reference standards requires evaluation of chemical, toxicity or odor properties which are not included in the other standard, then conformance to the applicable requirements of each standard shall be demonstrated;

(2) When a plastic material or component is not covered by the Standards in the following table, it shall be certified as non-toxic in accordance with NSF14–1984, "Plastic Piping System Components and Related Materials.

Material	ANSI	ASTM	FS	Other
Ferrous pipe and fittings:				
Cast Iron Threaded Fittings	ASME/B16.4–1985			
Malleable Iron Threaded Fittings	ASME/B16.3–1985			
Material and Property Standard for Special Cast Iron Fittings.				IAPMO PS–5–1984
Welded and Seamless Wrought Steel Pipe	ASME/B36.10–1985			
Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.		A 53–90a		
Pipe threads, General (Inch)	ASME/B1.20.1–1983			
Standard Specification for Cast Iron Soil Pipe and Fittings.		A 74 –87	W–P–401E–1974	
Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications.				CISPI 301–90
Nonferrous pipe and fittings:				
Standard Specification for Seamless Copper Pipe, Standard Sizes.		B–42–89		
Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tubes.		B 152–88(M)		
Standard Specification for Seamless Copper Water Tube.		B–88–89(M)		
Standard Specification for Copper Drainage Tube (DWV).		B 306–88		
Wrought-Copper and Copper Alloy, Solder-Joint Pressure Fittings.	ASME/B16–22–1989			
Wrought Copper and Wrought Copper Alloy Solder—Joint Drainage Fittings—DWV.	B16.29–1986			
Cast Copper Alloy Solder—Joint Pressure Fittings—(DMV).	B16.18–1984			
Cast Copper Alloy Solder—Joint Drainage Fittings—(DWV).	B16.23–1984			
Cast Copper Alloy Fittings for Flared Copper Tubes	B16–26–1988			
Standard Specification for Seamless Red Brass Pipe, Standard Sizes.		B 43–88		
Cast Bronze Threaded Fittings 125 and 250 pound	ASME/B16.15–1985			
Plastic Pipe and fittings:				
Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Drain, Waste and Vent Pipe and Fittings.		D 2661–90		NSF–14–1991
Standard Specification for Poly (Vinyl Chloride PVC) Plastic Drain, Waste and Vent Pipe Fittings.		D 2665–90a	L–P–320B–1973	NSF–14–1991
Standard Specification for Drain Waste and Vent (DWV) Plastic Fitting Patterns.		D3311–90a		
Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Drain, Waste, and Vent Pipe Having a Foam Core.		F 628–90		NSF–14–1991
Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot and Cold Water Distribution Systems.		D 2846–90		NSF–14–1991
Standard Specification for Polybutylene (PB) Plastic Hot and Cold Water Distribution Systems.		D 3309–90a		NSF–14–1991
Miscellaneous:				
Nipples, Pipe, Threaded				WW–N–351–C–1976 With Interim Amendment 1
Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.		C 564–88		

Material	ANSI	ASTM	FS	Other
Backflow Valves, Prevention Devices	A112.14.1-1975			IAPMO/PS 31-1991
Valve, Gate, Bronze, (125, 150 and 200 Pound Threaded Ends, Flange Ends, Solder End and Bronze Ends, for Land Use).			MSSVF150	
Plumbing Fixture Setting Compound			TTP 1536A-1975	
Material and Property Standard for Cast Brass and Tubing P-Traps.				IAPMO/PS-2-1989
Relief Valves and Automatic Gas Shut-off Devices for Hot Water Supply Systems.	Z21.22-1986			
Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings.		D 2235-88		NSF-14-1991
Standard Specification for Solvent Cement for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.		D 2564-88		NSF-14-1991
Specification for Neoprene Rubber Gaskets for Hub and Spigot Cast Iron Soil Pipe and Fittings.				CISPI-HSN-85
Plumbing System Components for Mobile Homes and Recreational Vehicles.				NSF-24-1988
Material and Property Standard for Diversion Tees and Twin Waste Elbow.				IAPMO/PS-9-1984
Material and Property Standard for Flexible Copper Water Connectors.				IAPMO/PS-14-1989
Material and Property Standard for Dishwasher Drain Airgaps (Air Breaks).				IAPMO/PS-23-1989
Plumbing fixtures:				
Plumbing fixtures (General Specifications)			WW-P-54E/GEN 1980	
Vitreous China Plumbing Fixtures	A112.19.2(M)-1982			
Enameled Cast Iron Plumbing Fixtures	ASME A112.19.1(M)-1987			
Porcelain Enameled Formed Steel Plumbing Fixtures.	ASME A112.19.4(M)-1984			IAPMO/TSC-22-1985
Plastic Bathtub Units	Z124.1-1987 with addenda Z124.1a-1990			IAPMO/TSC-22-1985
Plastic Shower Receptors and Shower Stalls	Z124.2-1987			
Stainless Steel Plumbing Fixtures—Residential Use	ASME A112.19.3(M)-1987			NSF-24-1988
Material and Property Standard for Drains for Prefabricated and Precast Showers.				IAPMO/PS-4-1988 NSF-24-1988
Plastic Lavatories	Z124.3-1986			
Safety Performance Specifications and Methods of Test for Safety Glazing Materials Use in Buildings.	Z97.1-1984			
Finished and Rough Brass Plumbing Fixture Fittings.	A112.18.1M-1989			
Trim for Water Closet Bowls, Tanks, and Urinals	A112.19.5-1979			
Plastic Water Closets, Bowls and Tanks	Z124.4-1986 with addendum Z124.4a-1990			
Whirlpool Bathtub Appliances	ASME/ANSI A112.19.7-1987			
Individual Shower Control Valves	ANSI/ASSE 1016-1990			
Pressurized Fixture Flushing Devices (Flushometers).				ASSE 1037-1990
Water Closet Flush Tank Fill Valves (Ballcocks)	ANSI/ASSE 1002-1979			
Handheld Showers	ANSI/ASSE 1014-1990			
Hydrants for Utility and Maintenance Use	ASME/ANSI A112.21.3M-1984			
Plumbing Requirements for Home Laundry Equipment.	ANSI/ASSE 1007-1986			
Hot Water Dispensers, Household Storage Type, Electrical Plumbing Requirements for.				ASSE 1023-1979
Household Dishwashers, Plumbing Requirements for.	ANSI/ASSE 1006-1986			
Household Food Waste Disposer Units, Plumbing Requirements for.	ANSI/ASSE 1008-1980			
Thermostatic Mixing Valves, Self Actuated for Primary Domestic Use.	ANSI/ASSE 1017-1979			
Water Hammer Arrestors	ASME/ANSI A112.26.1M-1984			
Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Whirlpool Bathtub Appliances.	ASME/ANSI A112.19.8-1987			
Air Gaps in Plumbing Systems	ASME/ANSI A112.1.2-1942 (1979)			
Diverters for Plumbing Faucets with Hose Spray, Anti Siphon Type, Residential Appliances; Pref. Requirements.	ANSI/ASSE 1025-1978			
Pipe Applied Atmospheric Type Vacuum Breakers	ANSI/ASSE 1001-1982			
Hose Connection Vacuum Wall Hydrants, Freezeless, Automatic Draining.	ANSI/ASSE 1011-1982			
Wall Hydrants, Freezeless, Automatic Draining Anti-Backflow Types.	ANSI/ASSE 1019-1978			

38. Section 3280.606 is proposed to be amended by revising paragraph (b)(1)(iii) to read as follows:

§ 3280.606 Traps and cleanouts.

* * * * *

(b) * * *

(1) * * *

(iii) A cleaning tool shall not be required to pass through more than 360 degrees of fittings, excluding removable "P" traps, to reach any part of the drainage system. Water closets may be removed for drainage system access.

* * * * *

39. Section 3280.607 is proposed to be amended by revising paragraphs (b)(2), (b)(2) (i), (ii), (iv) and (v), (b)(4)(i), and (c)(1) and by adding new paragraphs (c)(5) and (6) to read as follows:

§ 3280.607 Plumbing fixtures.

* * * * *

(b) * * *

(2) *Water closets.* (i) Water closets shall be designed and manufactured according to approved or listed standards and shall be equipped with a water flushing device capable of adequately flushing and cleaning the bowl at each operation of the flushing mechanism.

(ii) Water closet flushing devices shall be designed to replace the water seal in the bowl after each operation. Flush valves, flushometer valves, flushometer tanks and ballcocks shall operate automatically to shut off at the end of each flush or when the tank is filled to operating capacity.

* * * * *

(iv) Water closets that have fouling surfaces that are not thoroughly washed at each discharge shall be prohibited. Any water closet that might permit the contents of the bowl to be siphoned back into the water system shall be prohibited.

(v) *Floor connection.* Water closets shall be securely bolted to an approved flange or other approved fitting which is secured to the floor by means of corrosion-resistant screws. The bolts shall be of solid brass or other corrosion-resistant material and shall be not less than one-fourth inch in diameter. A watertight seal shall be made between the water closet and flange or other approved fitting by use of a gasket or sealing compound.

* * * * *

(4) *Dishwashing machines.* (i) A dishwashing machine shall not be directly connected to any waste piping, but shall discharge its waste through a fixed air gap installed above the machine, or through a high loop as specified by the dishwashing machine manufacturer, or into a open standpipe-receptor with a height greater than the washing compartment of the machine. When a standpipe is used, it shall be at least 18 inches but not more than 30 inches above the trap weir. The drain connections from the air gap or high loop may connect to an individual trap, to a directional fitting installed in the sink tailpiece or to an opening provided on the inlet side of a food waste disposal unit.

* * * * *

(c) *Installation*—(1) *Access.* Each plumbing fixture and standpipe receptor shall be located and installed in a manner to be accessible for usage, cleaning, repair and replacement. Access to diverter valves and other connections from the fixture hardware is not required.

* * * * *

(5) *Fixture fittings.* Faucets and diverters shall be installed so that the flow of hot water from the fittings corresponds to the left-hand side of the fitting.

(6) *Whirlpool bathtub appliances*—(i) *Access panel.* A door or panel of sufficient size shall be installed to provide access to the pump for repair and/or replacement.

(ii) *Piping drainage.* The circulation pump shall be accessibly located above the crown weir of the trap. The pump drain line shall be properly sloped to drain the volute after fixture use.

(iii) *Piping.* Whirlpool bathtub circulation piping shall be installed to be self-draining.

40. Section 3280.609 is proposed to be amended by revising paragraph (b)(5) and (6), (d)(1)(i) and (e)(3), and by adding paragraphs (b)(7) and (8), to read as follows:

§ 3280.609 Water distribution system.

* * * * *

(b) * * *

(5) *Flushometer valves or manually operated flush valves.* An approved or listed vacuum breaker shall be installed and maintained in the water supply line on the discharge side of a water closet flushometer valve or manually operated flush valve. Vacuum breakers shall have a minimum clearance of 6 inches above the flood level of the fixture to the critical level mark unless otherwise permitted in their approval.

(6) *Flush tanks.* Water closet flush tanks shall be equipped with an approved or listed anti-siphon ball cock which shall be installed and maintained with its outlet or critical level mark not less than 1 inch above the full opening of the overflow pipe.

(7) *Hose bibbs.* When provided, all exterior hose bibbs and laundry tray hose connections shall be protected by a listed non-removable backflow prevention device.

(8) *Flushometer tanks.* Flushometer tanks shall be equipped with an approved air gap on vacuum breaker assembly located above the flood level rim above the fixture.

* * * * *

(d) * * *

(1) * * *

(i) *Plastic piping.* All plastic water piping and fittings in manufactured homes must be listed for use with hot water.

* * * * *

(e) * * *

(3) *Solder fittings.* Joints in copper water tube shall be made by the appropriate use of approved cast brass or wrought copper fittings, properly soldered together. The surface to be soldered shall be thoroughly cleaned bright mechanically. The joints shall be properly fluxed and made with a solder that contains no more than 0.2 percent lead.

* * * * *

41. Section 3280.610 is proposed to be amended by revising paragraphs (c)(5); by redesignating paragraphs (d) introductory text and (d)(1) as paragraphs (d) (1) and (2), respectively; and by revising the newly redesignated (d)(1), and (e)(1)(iii), to read as follows:

§ 3280.610 Drainage systems.

* * * * *

(c) * * *

(5) *Preassembly of drain lines.* Section(s) of the drain system, designed to be located underneath the home, are not required to be factory-installed when the manufacturer designs the system for site assembly and also provides all materials and components including piping, fittings, cement, supports, and instructions necessary for proper site installation.

* * * * *

(d) * * *

(1) *Water closets.* The drain connection for each water closet shall be 3 inches minimum inside diameter and shall be fitted with an iron, brass, or listed plastic floor flange adaptor ring securely screwed, soldered or otherwise permanently attached to the drain piping, in an approved manner and securely fastened to the floor.

* * * * *

(e) * * *

(1) * * *

(iii) A 3-inch minimum diameter piping shall be required for water closets.

* * * * *

42. Section 3280.611 is proposed to be amended by revising paragraph (d)(5) to read as follows:

§ 3280.611 Vents and venting.

* * * * *

(d) * * *

(5) Materials for the anti-siphon trap vent shall be as follows: Cap and housing shall be listed acrylonitrile-butadiene-styrene, DWV grade; stem shall be DWV grade nylon or acetal; spring shall be stainless steel wire, type 302; sealing disc shall be neoprene, conforming to the Specification for Neoprene Rubber Gaskets for HUB and Spigot Cast Iron Soil Pipe and Fittings. CISPI–HSN–85 and ASTM C 564–88, Standard Specification for Rubber Gaskets for Case Iron Soil Pipe and Fittings or, silicone rubber, low and high temperature and tear resistant, conforming to Rubber, Silicone, FS ZZ–R–765B–1970, With 1971 Amendment 1; and Liners, Case, and Sheet, Overwrap; Water-Vapor Proof or Waterproof, Flexible, MIL–L–10547E–1975.

* * * * *

43. Section 3280.612 is proposed to be amended by revising paragraph (b)(3) to read as follows:

§ 3280.612 Test and inspection.

* * * * *

(b) * * *

(3) Flood level test. The manufactured home shall be in a level position, all fixtures shall be connected, and the entire system shall be filled with water to the rim of the toilet bowl. (Tub and shower drains shall be plugged). After all trapped air has been released, the test shall be sustained for not less than 15 minutes without evidence of leaks. Then the system shall be unplugged and emptied. The waste piping above the level of the water closet bowl shall then be tested and show no indication of leakage when the high fixtures are filled with water and emptied simultaneously to obtain the maximum possible flow in the drain piping.

* * * * *

Subpart H—Heating, Cooling and Fuel Burning Systems

44. Section 3280.702 is proposed to be amended by removing the paragraph designations from the section and by revising the definition for "Connector-Gas appliance" to read as follows:

§ 3280.702 Definitions.

* * * * *

Connector-Gas appliance means a flexible or semi-rigid connector used to convey fuel gas between a gas outlet and a gas appliance.

* * * * *

45. Section 3280.703 is proposed to be revised to read as follows:

§ 3280.703 Minimum standards.

Heating, cooling and fuel burning appliances and systems in manufactured homes shall be free of defects, and shall conform to applicable standards in the following table unless otherwise specified in this standard. (See § 3280.4) When more than one standard is referenced, compliance with any one such standard shall meet the requirements of this standard.

Appliances	ANSI	UL	Standards
Central Cooling Air Conditioners		465–Seventh Edition–1982 as amended through 1987.	
Liquid Fuel-Burning Heating Appliances for Mobile Homes and Recreational Vehicles.		307A–Sixth Edition–1990	
Electric Air Heaters		1025–Second Edition–1980, as amended through 1991.	
Electric Baseboard Heating Equipment		1042–Third Edition 1987	
Electric Central Air Heating Equipment		1096–Fourth Edition 1986 as amended through 1988.	
Gas Burning Heating Appliances for Mobile Homes and Recreational Vehicles.		307(B)–First Edition–1982, as amended through 1987.	
Gas Clothes Dryers, Vol. 1, Type 1 Clothes Dryers	Z21.5.1–1982 with addenda Z21.5.1a–1987		
Gas-Fired Absorption Summer Air Conditioning Appliances	Z21.40.–1981, Z21.40.a–1982		
Gas-Fired Central Furnaces (Except Direct Vent and Separated Combustion System Central Furnaces).	Z21.47–1989		
Household Cooking Gas Appliances	Z21.1–1987		
Refrigerators Using Gas Fuel	Z21.19–1983		
Gas Water Heaters, Vol. 1 Storage Water Heaters with Input Ratings of 75,000 BTU per hour or Less.	Z21.10.1–1990		
Heat Pumps		559–Fourth Edition–1985, as amended through 1987.	
Household Electric Storage Tank Water Heaters		174–Eighth Edition–1989, as amended through 1991.	
Ferrous pipe and fittings:			
Standard Specification for Pipe, Steel, Black and Hot Dipped, Zinc Coated, Welded and Seamless.			ASTM A53–90a
Standard Specification for Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines.			ASTM A 539–90a
Pipe Threads, General Purpose (Inch)	ASME B1.20.1–1983		
Welded and Seamless Wrought Steel Pipes	ASME B36.10–1985		
Nonferrous pipe, tubing and fittings:			
Standard Specification for Seamless Copper Water Tube			ASTM B–88–90(M)
Standard Specification for Seamless copper Tube for Air Conditioning and Refrigeration Field Service.			ASTM B–280–88
Metal Connectors for Gas Appliances	Z21.24–1987		
Manually Operated Gas Valves	Z21.15–1989		
Standard for Gas Supply Connectors for Manufactured Mobile Homes			IAPMO/TSC–9–1988
Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tubes.			ASTM B 251–88(M)
Standard Specification for Seamless Copper Pipe, Standard Sizes			ASTM B 42–89

Appliances	ANSI	UL	Standards
Direct Vent Central Furnaces	Z21.64–1988 with addenda Z21.64a–1989 and Z21.64b–1989.		
Miscellaneous:			
Factory Made Air Ducts and Connectors		181–Seventh Edition–1990	
Tube Fittings for Flammable and Combustible Fluids and Refrigeration Service, and Marine Use.		109–Fourth Edition–1978	
Pigtails, and Flexible Hose Connectors for LP–Gas		569–Sixth Edition–1990	
Roof Jacks for Mobile Homes and Recreational Vehicles		311–Seventh Edition 1990	
Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems.	Z21.22–1986		
Automatic Gas Ignition Systems and components	Z21.20–1989		
Automatic Valves for Gas Appliances	Z21.21–1987 with addenda Z21.21a–1989		
Gas Appliance Thermostats	Z21.23–1989		
Gas Vents		441–Seventh Edition–1991	
Installation of Oil Burning Equipment (the following sections only):			NFPA 31–1987
1–1			
1–2			
1–3			
1–4 except 1–4.1			
1–5.1			
1–5.2			
1–5.4.2			
1–5.4.3			
1–5.5			
1–5.6			
1–6			
1–7.2 except 1–7.2.4			
1–8			
1–9			
1–10.1			
3–1.1			
3–1.3			
3–1.4			
3–1.5			
3–1.6			
3–10			
4–1.3			
4–1.4			
4–1.5			
4–2			
4–3 except 4–3.2			
4–4 except 4–4.2, 4–4.5.4, 4–4.6			
4–4.7, 4–4.9 and 4–4.10 Appendices B, C, and E			
National Fuel Gas Code	Z223.1–1988		NFPA 54–1988
Warm Air Heating and Air Conditioning Systems, except:			NFPA–90B–1989
2–2.4			
2–3.6			
Table 3–1.3, Section B			
4–1.6			
Storage and Handling Liquefied Petroleum Gases (Chapters 1, 2 and Articles 30 and 31 of Chapter 3).			NFPA 58–1989
Flares for Tubing			SAE J533b–1972
Chimneys, Factory Built Residential Type and Building Heating Appliance.		103–Seventh Edition–1983, as amended through 1988.	
Factory-Built Fireplaces		127–Sixth Edition 1988 as amended through 1991.	
Room Heaters, Solid-Fuel Type		1482–Third Edition 1988	
Fireplace Stoves		737–Sixth Edition 1988	
Unitary Air Conditioning and Air Source Unitary Heat Pump Equipment			ARI Standard 210/240

46. Section 3280.704 is proposed to be amended by revising the introductory text paragraph (b)(2) and paragraph (b)(5)(i) to read as follows:

§ 3280.704 Fuel supply systems.

* * * * *

(b) * * *

(2) *Construction of containers.* Containers shall be constructed and marked in accordance with the specifications for LP-Gas Containers of the U.S. Department of Transportation (DOT) or the Rules for Construction of Pressure Vessels 1986, ASME Boiler and Pressure Vessel Code section VIII, Division 1 ASME Containers shall have a design pressure of at least 312.5 psig.

* * * * *

(5) *LP-gas safety devices.* (i) DOT containers shall be provided with safety relief devices as required by the regulations of the U.S. Department of Transportation. ASME containers shall be provided with relief valves in accordance with subsection 221 of the Storage and Handling Liquified Petroleum Gases, NFPA No. 58–1989. Safety relief valves shall have direct communication with the vapor space of the vessel.

* * * * *

47. Section 3280.705 is proposed to be amended by revising paragraphs (b)(1), (b)(3), (c), (d), the table to (d), (k), the table to (k), (1)(1), (1)(2) introductory text, (1)(2)(ii), and (1)(3) to read as follows:

§ 3280.705 Gas piping systems.

* * * * *

(b) * * *

(1) Steel or wrought-iron pipe shall comply with ANSI Standard B36.10–1985. Welded and Seamless Wrought Steel Pipe. Threaded brass pipe in iron pipe sizes may be used. Threaded brass pipe shall comply with ASTM B43–88 Standard Specification for Seamless Red Brass Pipe, Standard Sizes.

* * * * *

(3) Copper tubing shall be anneled type, Grade K or L, conforming to the Standard Specification for Seamless Copper Water Tube (ASTM B88–88a) or shall comply with the Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service, ASTM B 280–88. Copper tubing shall be internally tinned.

* * * * *

(c) *Piping design.* Each manufactured home requiring fuel gas for any purpose shall be equipped with a natural gas piping system acceptable for LP-Gas. Where fuel gas piping is to be installed in more than one section of an expandable or multiple unit home, the design and construction of the crossover(s) shall be as follows:

(1) All points of crossover shall be readily accessible from the exterior of the home.

(2) The connection(s) between units shall be made with a connector(s) listed for exterior use or direct plumbing sized in accordance with § 3280.705(d). A shutoff valve of the nondisplaceable rotor type conforming to ANSI Z21.15–1989 Manually Operated Gas Valves, suitable for outdoor use shall be installed at each crossover point upstream of the connection when listed connectors are used.

(3) The connection(s) may be made by a listed "quick disconnect" device which shall be designed to provide a positive seal of the supply side of the gas system when such device is separated.

(4) The flexible connector, direct plumbing pipe, or "quick disconnect" device shall be provided with protection from mechanical and impact damage and located to minimize the possibility of tampering.

(5) For direct plumbing which may be either hard pipe or flexible connector, the crossover point(s) shall be capped on the supply side to provide a positive seal and covered on the other side with a suitable protective covering.

(6) Suitable protective coverings for the connection device(s) when separated, shall be permanently attached to the device or flexible connector.

(7) When a "quick disconnect" device is installed, a 3 inch by 1¾ inch minimum size tag made of etched, metal-stamped or embossed brass, stainless steel, anodized or alclade aluminum not less than 0.020 inch thick or other approved material (e.g., 0.005 inch plastic laminates) shall be permanently attached on the exterior wall adjacent to the access to the "quick disconnect" device. Each tag shall be legibly inscribed with the following information using letters no smaller than ¼ inch high:

Do Not Use tools to Separate the "Quick-Disconnect" Device

(d) *Gas pipe sizing.* Gas piping systems shall be sized so that the pressure drop to any appliance inlet connection from any gas supply connection, when all appliances are in operation at maximum capacity, is not more than 0.5 inch water column as determined on the basis of test, or in accordance with Table 3280.705(d). When determining gas pipe sizing in the table, gas shall be assumed to have a specific gravity of 0.65 and rated at 1000 B.T.U. per cubic foot. The natural gas supply connection(s) shall be not less than the size of the gas piping but shall be not smaller than ¾ inch nominal pipe size.

* * * * *

(k) *Identification of gas supply connections.* Each manufactured home shall have permanently affixed to the exterior skin at or near each gas supply connection or the end of the pipe, a tag of 3 inches by 1¾ inches minimum size, made of etched, metal-stamped or embossed brass, stainless steel, anodized or alclade aluminium not less than 0.020 inch thick, or other approved meaterial (e.g., 0.005 inch plastic laminates), which reads as follows.

Combination LP-Gas and Natural Gas System

This gas piping system is designed for use of either liquefied petroleum gas or natural gas.

Notice: BEFORE TURNING ON GAS BE CERTAIN APPLIANCES ARE DESIGNED FOR THE GAS CONNECTED AND ARE EQUIPPED WITH CORRECT ORIFICES. SECURELY CAP THIS INLET WHEN NOT CONNECTED FOR USE.

When connecting to lot outlet, use a listed gas supply connector for mobile homes rated at 100,000 Btuh or more; 250,000 Btuh or more.

Before turning on gas, make certain all gas connections have been made tight, all appliance valves are turned off, and any unconnected outlets are capped.

After turning on gas, test gas piping and connections to appliances for leakage with soapy water or bubble solution, and light all pilots.

The connector capacity indicated on this tag shall be equal to or greater than the total Btuh rating of all intended gas appliances.

(l) *Gas supply connectors*—(1) *LP-Gas.* A listed LP-Gas flexible connection conforming to the UL Standard for Pigtails, and Flexible Hose Connectors for LP-Gas, UL 569—Sixth Edition—1990, or equal shall be supplied when the fuel gas piping system is designed for the use of LP-Gas and cylinder(s) and regulator(s) are supplied.

(2) *Appliance connections.* All gas burning appliances shall be connected to the fuel piping. Materials as provided in § 3280.705(b) or listed appliance connectors shall be used. Listed appliance connectors when used shall not run through walls, floors, ceilings or partitions except for cabinetry and shall be 3 feet or less in length or 6 feet or less for cooking appliances. Connectors of aluminium shall not be used outdoors. A manufactured home containing an LPG or a combination LP-natural-gas-system may be provided with a gas outlet to supply exterior appliances when installed in accordance with the following:

* * * * *

(ii) The outlet shall be provided with an approved "quick-disconnect" device, which shall be designed to provided a positive seal on the supply side of the gas system when the appliance is disconnected. A shutoff valve of the nondisplaceable rotor type conforming to ANSI Z21.15–1989, Manually Operated Gas Valves, shall be installed immediately upstream of the quick-disconnect device. The complete device shall be provided as part of the original installation.

* * * * *

(3) *Valves.* A shutoff valve shall be installed in the fuel piping at each appliance inside the manufactured home structure, upstream of the union or connector in addition to any valve on the appliance and so arranged to be accessible to permit serving of the appliance and removal of its components. The shutoff valve shall be located within 6 feet of a cooking appliance and within 3 feet of any other appliance. A shutoff valve may serve more than one appliance if located as required above. Shut off valve used shall be of the nondisplaceable rotor type and conform ANSI Z21.15–1989, Manually Operated Gas Valve.

* * * * *

48. Section 3280.706 is proposed to be amended by revising paragraphs (b)(1), (b)(3), and (b)(4) to read as follows:

§ 3280.706 Oil piping systems.

* * * * *

(b) * * *

(1) Steel or wrought-iron pipe shall comply with ANSI B 36.10–1985, Welded and Seamless Wrought Steel Pipe. Threaded copper or brass pipe in iron pipe sizes may be used.

* * * * *

(3) Copper tubing shall be annealed type, Grade K or L conforming to the Standard Specification for Seamless Copper Water Tube, ASTM–B 88–89(M), or shall comply with the Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service, ASTM B280–88.

(4) Steel tubing shall have a minimum wall thickness of 0.032 inch for diameters up to ½ inch and 0.049 inch for diameters ½ inch and larger. Steel tubing shall be constructed in accordance with the Specification for Electric-Resistance Welded Coiled Steel Tubing for Gas and Field Oil Lines, ASTM, A539–90a, and shall be externally corrosion protected.

* * * * *

49. Section 3280.707 is proposed to be amended by revising paragraph (d)(2) introductory text to read as follows:

§ 3280.707 Heat producing appliances.

* * * * *

(d) * * *

(2) All gas and oil-fired automatic storage water heaters shall have a recovery efficiency, E, and a standby loss, S, as described below. The method of test of E and S shall be as described in Section 2.7 of Gas Water heaters, Vol. I, Storage Water Heaters with Input/Ratings of 75,000 BTU per hour or less, ANSI Z21.10.1–1990, except that for oil-fired units. CF=1.0, Q=total gallons of oil consumed and H=total heating value of oil in BTU/gallon.

* * * * *

50. Section 3280.708 is proposed to be amended by revising paragraphs (b)(3) and (c)(1) to read as follows:

§ 3280.708 Exhaust duct system and provisions for the future installation of a clothes dryer.

* * * * *

(b) * * *

(3) A moisture lint duct system consisting of a complete access face (hole) through the wall or floor cavity with a cap or cover on the interior and exterior of the cavity secured in such a manner that they can be removed by a common household tool shall be provided. The cap or cover in place shall limit air infiltration and be designed to resist the entry of water or rodents. The manufacturer is not required to provide the moisture-lint exhaust duct or the termination fitting. The manufacturer shall provide written instructions to the owner on how to complete the exhaust duct installation in accordance with provisions of § 3280.708(a) (1) through (5).

(c) * * *

(1) Provide a roughed in moisture-lint exhaust duct system consisting of a complete access space (hole) through the wall or floor cavity with a cap or cover on the interior and exterior of the cavity which are secured in such a manner that they can be removed by the use of common household tools. The cap or cover in place shall limit air filtration and be designed to resist the entry of water or rodents into the home. The manufacturer is not required to provide the moisture-lint exhaust duct or the termination fitting:

* * * * *

51. Section 3280.709 is proposed to be amended by revising paragraph (e)(6) to read as follows:

§ 3280.709 Installation of appliances.

* * * * *

(e) * * *

(6) When an external heating appliance or combination cooling/heating appliance is to be field installed, the home manufacturer shall make provision for proper location of the connections to the supply and return air systems. The manufacturer is not required to provide said appliance(s). The preparation by the manufacturer for connection to the home's supply and return air system shall include all fittings and connection ducts to the main duct and return air system such that the installer is only required to provide:

(i) The appliance;

(ii) Any appliance connections to the home; and

(iii) The connecting duct between the external appliance and the fitting installed on the home by the manufacturer. The above connection preparations by the manufacturer do not apply to supply or return air systems designed only to accept external cooling (i.e., self contained air conditioning systems, etc.)

* * * * *

52. Section 3280.710 is proposed to be amended by revising paragraph (b)(1) to read as follows:

§ 3280.710 Venting, ventilation and combustion air.

* * * * *

(b) * * *

(1) Components shall be securely assembled and properly aligned at the factory in accordance with the appliance manufacturer's instructions except vertical or horizontal sections of the roof line or wall line may be installed at the site. Sectional venting systems shall be listed for such applications and installed in accordance with the terms of their listings and manufacturers' instructions. In cases where sections of the venting system are removed for transportation, a label shall be permanently attached to the appliance indicating the following:

Sections of the venting system have not been installed. Warning—do not operate the appliance until all sections have been assembled and installed in accordance with the manufacturer's instructions.

* * * * *

53. Section 3280.713 is proposed to be revised to read as follows:

§ 3280.713 Accessibility.

Every appliance shall be accessible for inspection, service, repair, and replacement without removing permanent construction. For those purposes, inlet piping supplying the appliance shall be considered permanent construction. Sufficient room shall be available to enable the operator to observe the burner, control, and ignition means while starting the appliance.

54. Section 3280.714 is proposed to be amended by revising paragraph (a) to read as follows:

§ 3280.714 Appliances, Cooling.

(a) Every air conditioning unit or a combination air conditioning and heating unit shall be listed or certified by a nationally recognized testing agency for the application for which the unit is intended and installed in accordance with the terms of its listing.

(1) Mechanical air conditioners shall be rated in accordance with the ARI Standard 210/240–89 Unitary Air Conditioning and Air Source Unitary Heat Pump Equipment and certified by ARI or other nationally recognized testing agency capable of providing follow-up service.

(i) Electric motor-driven unitary cooling systems with rated capacity less than 65,000 BTU/Hr when rated at ARI Standard rating conditions in ARI Standard 210/240–89 Unitary Air Conditioning and Air Source Unitary Heat Pump Equipment, shall show energy efficiency (EER) values not less than 7.2.

(ii) Heat pumps shall be certified to comply with all the requirements of the ARI Standard 210/240–89 Unitary Air Conditioning and Air Source Unitary Heat Pump Equipment. Electric motor-driven vapor compression heat pumps with supplemental electrical resistance heat shall be sized to provide by compression at least 60 percent of the calculated annual heating requirements

for the manufactured home being served. A control shall be provided and set to prevent operation of supplemental electrical resistance heat at outdoor temperatures above 40 °F, except for defrost operation.

(iii) Electric motor-driven vapor compression heat pumps with supplemental electric resistance heat conforming to ARI Standard 210/240–89 Unitary Air Conditioning and Air Source Unitary Heat Pump Equipment shall show coefficient of performance ratios not less than shown below:

COP

Outdoor Air Temperature/COP		
47 °F	17 °F	0 °
2.5	1.7	1.0

(2) Gas-fired absorption air conditioners shall be listed or certified in accordance with ANSI Standard Z21.40.1–1981 "Gas-fired Absorption Summer Air Conditioning Appliances" with addenda la-1982, and certified by AGA or another nationally recognized testing agency capable of providing follow-up service.

(3) Direct refrigerating systems serving any air conditioning or comfort-cooling system installed in a manufactured home shall employ a type of refrigerant that ranks no lower than Group 5 in the Underwriters' Laboratories, Inc. "Classification of Comparative Life Hazard of Various Chemicals."

(4) When a cooling or heat pump coil and air conditioner blower are installed with a furnace or heating appliance, they shall be tested and listed in combination for heating and safety performance by a nationally recognized testing agency.

(5) Cooling or heat pump indoor coils and outdoor sections shall be certified, listed and rated in combination for capacity and efficiency by a nationally recognized testing agency (ies). Rating procedures shall be based on U.S. Department of Energy test procedures.

* * * * *

55. Section 3280.715 is proposed to be amended by revising the last sentence in paragraph (b)(4) and paragraph (e)(1) to read as follows:

§ 3280.715 Circulating air system.

* * * * *

(b) * * *

(4) * * * However, in the event that doors are undercut, they shall be undercut a minimum of 2 inches and not more than 2-½ inches, as measured from the top surface of the floor decking to the bottom of the door and no more than one half of the free air area so provided shall be counted as return air area.

* * * * *

(e) * * *

(1) Be made of a material classified 94V–0 or 94V–1 when tested as described in Underwriters' Laboratories, Inc., Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL94–Fourth Edition–1991.

* * * * *

Subpart I—Electrical Systems

56. Section 3280.801 is proposed to be amended by revising paragraphs (a), (b), (c), and (e) to read as follows:

§ 3280.801 Scope.

(a) Subpart I of this standard and part A of Article 550 of the National Electrical Code (NFPA No. 70–1990) cover the electrical conductors and equipment installed within or on manufactured homes and the conductors that connect manufactured homes to a supply of electricity.

(b) In addition to the requirements of this standard and Article 550 of the National Electrical Code (NFPA No. 70–1990) the applicable portions of other Articles of the National Electrical Code shall be followed covering electrical installations in manufactured homes. Wherever the requirements of this standard differ from the National Electrical Code, this standard shall apply.

(c) The provisions of this standard apply to manufactured homes intended for connection to a wiring system nominally rated 120/240 volts, 3-wire AC, with grounded neutral.

* * * * *

(e) Aluminum conductors, aluminum alloy conductors, and aluminum core conductors such as copper clad aluminum; are not acceptable for use in branch circuit wiring in manufactured homes.

57. Section 3280.803 is proposed to be amended by revising paragraphs (k)(1), the introductory text of (k)(3), (k)(3)(ii) and (k)(3)(iii), and by removing paragraph (1) to read as follows:

§ 3280.803 Power supply.

* * * * *

(k) * * *

(1) One mast weatherhead installation installed in accordance with Article 230 of the National Electrical Code NFPA No. 70–1990 containing four continuous insulated, color-coded, feeder conductors, one of which shall be an equipment grounding conductor; or

* * * * *

(3) Service equipment installed on the manufactured home in accordance with Article 230 of the National Electrical Code NFPA No. 70–1990; and

* * * * *

(ii) Exterior equipment, or the enclosure in which it is installed shall be weatherproof and installed in accordance with Article 373–2 of the National Electrical Code NFPA No. 70–1990. Conductors shall be suitable for use in wet locations;

(iii) The neutral conductor shall be connected to the system grounding conductor on the supply side of the main disconnect in accordance with Articles 250–23, 25, and 53 of NFPA No. 70–1990.

* * * * *

58. Section 3280.804 is proposed to be amended by revising paragraphs (a) and (j) and by adding new paragraphs (k) and (l) at the end of the section to read as follows:

§ 3280.804 Disconnecting means and branch-circuit protective equipment.

(a) The branch-circuit equipment shall be permitted to be combined with the disconnecting means as a single assembly. Such a combination shall be permitted to be designated as a distribution panelboard. If a fused distribution panelboard is used, the maximum fuse size of the mains shall be plainly marked with lettering at least ¼-inch high and visible when fuses are changed. See section 110–22 of the National Electrical Code (NFPA No. 70–1990) concerning identification of each disconnecting means and each service, feeder, or branch circuit at the point where it originated and the type marking needed.

* * * * *

(j) A 3 inch by 1-¾ inch minimum size tag made of etched, metal-stamped or embosses brass, stainless steel, anodized or alclad aluminum not less than 0.020 inch thick, or other approval material (e.g., 0.005 inch plastic laminates) shall be permanently affixed on the outside adjacent to the feeder assembly entrance and shall read: This connection for 120/240 Volt, 3-Pole, 4-Wire, 60 Hertz,—Ampere Supply. The correct ampere rating shall be marked on the blank space.

(k) When a home is provided with installed service equipment, a single disconnecting means for disconnecting the branch circuit conductors from the service entrance conductors shall be provided in accordance with part H of Article 230 of the National Electrical Code, NFPA No. 70–1990. The disconnecting means shall be listed for use as service equipment. The disconnecting means may be combined with the disconnect required by

§ 3280.804(c). The disconnecting means shall be rated not more than the ampere supply or service capacity indicated on the tag required by paragraph (1) of this section.

(1) When a home is provided with installed service equipment, the electrical nameplate required by § 3280.804(j) shall read: "This connection for 120/240 volt, 3 pole, 3 wire, 60 Hertz,—Ampere Supply." The correrct ampere rating shall be marked in the blank space.

59. Section 3280.805 is proposed to be amended by revising paragraphs (a)(2), (a)(3)(ii), (iv), and (v) to read as follows:

§ 3280.085 Branch circuits required.

(a) * * *

(2) *Small appliances.* For the small appliance load in kitchen, pantry dining room and breakfast rooms of manufactured homes, two or more 20-ampere appliance branch circuits, in addition to the branch circuit specified in § 3280.805(a)(1), shall be provided for all receptacle outlets in these rooms, and such circuits shall have no other outlets. Receptacle outlets supplied by at least two appliance receptacle branch circuits shall be installed in the kitchen.

(3) * * *

(ii) For fixed appliances on a circuit without lighting outlets, the sum of rated amperes shall not exceed the branch-circuit rating. Motor loads on other continuous duty loads shall not exceed 80 percent of the branch circuit rating.

* * * * *

(iv) The rating of range branch circuit shall be based on the range demand as specified or ranges in § 3280.811, Item B(5) of Method 1. For central air conditioning, see Article 440 of the National Electrical Code (NFPA No. 70–1990).

(v) Where a laundry area is provided, a 20 ampere branch circuit shall be provided to supply laundry receptacle outlets. This circuit shall have no other outlets. See § 3280.806(a)(7).

60. Section 3280.806 is proposed to be amended by revising paragraphs (a)(2), (b), (d)(2), (d)(7), and (d)(8) to read as follows:

§ 3280.806 Receptacle outlets.

(a) * * *

(2) Installed according to section 210–7 of the National Electrical Code (NFPA No. 70–1990).

* * * * *

(b) All 120 volt single phase, 15 and 20 ampere receptacle outlets, including receptacles in light fixtures, installed outdoors, or in compartments accessible from the outdoors, and in bathrooms shall have ground-fault circuit protection for personnel. Feeders supplying branch circuits may be protected by a ground-fault circuit-interrupter in lieu of the provision for such interrupters specified above. Receptacles for laundry areas, also located in bathroom are exempt from this requirement.

(d) * * *

(2) Adjacent to the refrigerator and free-standing gas-range space. A duplex receptacle may serve as the outlet for a countertop and a refrigerator.

* * * * *

(7) In laundry areas within 6 feet of the intended location of the appliance(s).

(8) At least one receptacle outlet shall be installed outdoors.

* * * * *

61. Section 3280.807 is proposed to be amended by revising paragraphs (c) and (e) and by removing paragraph (g) to read as follows:

§ 3280.807 Fixtures and appliances.

* * * * *

(c) If a lighting fixture is provided over a bathtub or in a shower stall, it shall be of the enclosed and gasketed type, listed for wet locations. See also Article 410–4(d) of the National Electrical Code NFPA No 70–1990.

* * * * *

(e) Any combustible wall or ceiling finish exposed between the edge of a fixture canopy, or pan and an outlet box shall be covered with non-combustible or limited combustible material.

* * * * *

62. Section 3280.808 is proposed to be amended by revising paragraphs (a) and (m) and by adding new paragraphs (q), (r), and (s) to read as follows:

§ 3280.808 Wiring methods and materials.

(a) Except as specifically limited in this part, the wiring methods and materials specified in the National Electrical Code (NFPA No. 70–1990) shall be used in manufactured homes.

* * * * * *

(m) Outlet boxes of dimensions less than those required in Table 370-6(a) of the National Electrical Code (NFPA No. 70–1990) shall be permitted provided the box has been tested and approved for the purpose.

* * * * *

(q) A substantial brace for securing a box, fitting or cabinet shall be as described in the National Electrical Code, NFPA 70–1990 Article 370–13(d), or the brace, including the fastening mechanism to attach the brace to the home structure, shall withstand a force of 50 lbs. applied to the brace at the intended point(s) of attachment for the box in a direction perpendicular to the surface in which the box is installed.

(r) Outlet boxes shall fit closely to the openings in combustible wall and ceilings with a maximum of a ⅛ inch gap. They shall be flush with the finish surface or project therefrom.

(s) Where the sheathing of NM cable has been cut or damaged and visual inspection reveals that the conductor and its insulation has not been damaged, it shall be permitted to repair the cable sheath with electrical tape which provides equivalent protection to the sheath.

63. Section 3280.809 is proposed to be amended by adding at the end of paragraph (b)(1) to read as follows:

§ 3280.809 Grounding

* * * * *

(b) * * *

(1) * * * However, when service equipment is installed on the manufactured home, the neutral and the ground bus may be connected in the distribution panel.

* * * * *

64. Section 3280.810 is proposed to be revised to read as follows:

§ 3280.810 Electrical testing.

(a) *Dielectric strength test.* The wiring of each manufactured home shall be subjected to a 1-minute, 900 to 1079 volt dielectric strength test (with all switches closed) between live parts and the manufactured home ground, and neutral and the manufactured home ground. Alternatively, the test may be performed at 1080 to 1250 volts for 1 second. This test shall be performed after branch circuits are complete and after fixtures or appliances are installed. Fixtures or appliances which are listed shall not be required to withstand the dielectric strength test.

(b) Each manufactured home shall be subject to:

(1) A continuity test to assure that metallic parts are properly bonded;

(2) Operational test to demonstrate that all equipment, except water heaters, electric furnaces, dishwashers, clothes washers/dryers, and portable appliances, is connected and in working order; and

(3) Polarity checks to determine that connections have been properly made.

Visual verification shall be an acceptable check.

65. Section 3280.811 is proposed to be amended by revising the introductory text of paragraph (a), paragraph (a)(1)(iv), the introductory paragraph (a)(5), (a)(6), and the introductory text of paragraph (b) to read as follows:

§ 3280.811 Calculations.

(a) The following method shall be employed in computing the supplycord and distribution-panelboard load for each feeder assembly for each manufactured home and shall be based on a 3-wire, 120/240 volt supply with 120 volt loads balanced between the two legs of the 3-wire system. The total load for determining power supply by this method is the summation of:

(1) * * *

(iv) First 3,000 total watts at 100 percent plus remainder at 35 percent=watts to be divided by 240 volts to obtain current (amperes) per leg.

* * * * *

(5) Derive amperes for free-standing range (as distinguished from separate ovens and cooking units) by dividing values below by 240 volts.

* * * * *

(6) If outlets or circuits are provided for other than factory-installed appliances, include the anticipated load. The following example is given to illustrate the application of this Method of Calculation:

Example. A manufactured home is 70×10 feet and has two portable appliance circuits, a 1000 watt 240 volt heater, a 200 watt 120 volt exhaust fan, a 400 watt 120 volt dishwasher and a 7000 watt electric range.

Lighting and small appliance load	Watts
Lighting 70×10×3	2,100
Small appliance 1,500×2	3,000
Total	5,100
1st 3,000 W at 100 pct	3,000
Remainder (5,100 −3,000 =2,100) at 35 pct	735
Total	3,735

3,735/240 = 15.5A per leg
1,000 W (heater)/240 = 4.1A
200 W (fan)/120 = 1.7A.
400 W (dishwasher)/120 = 3.3A
7,000 W (range) ×0.8/240 = 233.3

	Amperes per leg	
	A	B
Lighting and appliances	15.5	15.5
Heater (230 v)	4.1	4.1
Fan (115 v)	1.7	
Dishwasher (115 v)		3.3
Range	23.3	23.3
Totals	44.6	46.2

Note: Based on the higher current calculated for either leg, use one 50-A supply cord.

(b) The following is an optional method of calculation for lighting and appliance loads for manufactured homes served by single 3-wire 120/240 volt set of feeder conductors with an ampacity of 100 or greater. The total load for determining the feeder ampacity may be computed in accordance with the following table instead of the method previously specified. Feeder conductors whose demand load is determined by this optional calculation shall be permitted to have the neutral load determined by section 220–22 of the National Electrical Code (NFPA No. 70–1990). The loads identified in the table as "other load" and as "Remainder of other load" shall include the following:

* * * * *

66. Section 3280.813 is proposed to be amended by revising paragraph (a) to read as follows:

§ 3280.813 Outdoor outlets, fixtures, air conditioning equipment, etc.

(a) Outdoor fixtures and equipment shall be listed for use in wet locations, except that if located on the underside of the home or located under roof extensions or similarly protected locations, they may be listed for use in damp locations.

* * * * *

Dated: February 10, 1992.

Arthur J. Hill,

Assistant Secretary for Housing-Federal Housing Commissioner.

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